



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 21, 2004

US Army Corps of Engineers
Regulatory Branch
Post Office Box 1890
Wilmington, North Carolina 28402

ATTENTION: Mr. Richard Spencer
NCDOT Coordinator

Dear Mr. Spencer:

Subject: **Nationwide 23 and 33 applications**, for the replacement of Bridge No. 226 over Richland Creek on SR 2832, Randolph County. Federal Aid Project No. BRZ-2832(2), State Project No. 8.2572401 TIP Project No. B-3506.

Please find enclosed three copies of the project planning report for the above referenced project. The document states that Bridge No. 226 will be replaced with a new 120-foot long bridge on the existing alignment. Traffic will use an offsite detour during construction. All impacts are temporary consist of 0.01 acres of fill in surface waters. There are no wetlands in the project area. Richland Creek is located in sub basin 03030003 of the Cape Fear River Basin.

Demolition: Bridge No. 226 is composed of timber and steel. The bridge railings and substructure will be removed without dropping components into Waters of the United States. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices for the Protection of Surface Waters and BMP's for Bridge Demolition and Removal.

Temporary Causeways

There will be 0.01 acres temporary impacts from the construction a rock causeway on the southern side of Richland Creek for the construction of bridge 226 (see permit drawing Sheets 3 and 5). The temporary rock causeway will be used to construct the new bridge.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Restoration Plan: No permanent fill will result in the stream from the subject activity. The materials used as temporary fill in the construction of the causeways will be removed. The temporary fill areas will be graded back to the original contours. Elevations and contours in the vicinity of the proposed causeways are available from the field survey notes.

Schedule for Restoration of Temporary Fill Area: It is assumed that the Contractor will begin construction of the proposed causeways shortly after the date of availability for the project. The Let date is September 21, 2004 with a date of availability of November 2, 2004.

Removal and Disposal: The causeways will be removed shortly after it is no longer need for the construction of the bridge. The temporary rock causeways will be removed by the Contractor using excavating equipment. All materials placed in the stream by the Contractor will be removed and disposed of in an upland area.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 2003 the Fish and Wildlife Service (FWS) lists two federally protected species for Randolph County (Table 1).

Table 1- Federally Protected Species of Randolph County

Common Name	Scientific Name	Federal Status	Habitat Present	Biological Conclusion
Schweinitz's sunflower	<i>Helianthus schweinitzii</i>	E	Y	MA, NLAA
Cape Fear Shiner	<i>Notropis mekistocholas</i>	E	Y	MA, NLAA

A biological conclusion of “may affect, not likely to adversely affect” was given in the Categorical Exclusion reached for the Cape Fear Shiner and No Effect for Schweinitz's sunflower. On July 29, 2003 the USFWS concurred with this conclusion. NCDOT will conduct a resurvey for the Schweinitz's sunflower and concurrence will be requested prior to the project let date.

Regulatory Approvals

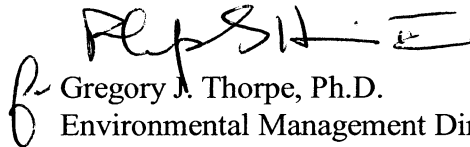
Section 404 Permit: It is anticipated that the construction of the causeways will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the causeway. All other aspects of this project are being processed by the Federal Highway Administration as a “Categorical Exclusion” in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit, but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certifications numbers 3361 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

A copy of this permit application will be posted on the NCDOT website at: <http://www.ncdot.org/planning/pe/naturalunit/permit.html>

If you have any questions or need additional information, please contact Brett Feulner at (919) 715-1488.

Sincerely,


Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

cc: w/ attachment

Mr. John Hennessy, NC Division of Water Quality (2 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Greg Perfetti, P.E., Structure Design
Mr. John F. Sullivan, III, FHWA
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, PE, Highway Design
Mr. David Chang, P.E., Hydraulics
Ms. Mark Staley, Roadside Environmental
Mr. T Johnson, PE, Division Engineer
Mr. Art King, DEO
Mr. Elmo Vance, Project Planning Engineer

Office Use Only:

Form Version May 2002

USACE Action ID No. _____ DWQ No. _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:

☒ Section 404 Permit☐

Riparian or Watershed Buffer Rules

☐ Section 10 Permit☐

Isolated Wetland Permit from DWQ

☐ 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested:
- NW 23 & 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here:
- ☒

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here:
- ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here:
- ☐

II. Applicant Information

1. Owner/Applicant Information

Name: NCDOTMailing Address: Project Development and Environmental Analysis1548 Mail Service CenterRaleigh, NC 27966-1548Telephone Number: (919) 733-3141Fax Number: (919) 733-9794E-mail Address: gthorpe@dot.state.nc.us

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: _____

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____

Fax Number: _____

E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge 226 over Richland Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3506
3. Property Identification Number (Tax PIN): _____
4. Location
County: Randolph Nearest Town: Asheboro
Subdivision name (include phase/lot number): _____
Directions to site (include road numbers, landmarks, etc.): The site is located on SR 2832 over Richland Creek.
5. Site coordinates, if available (UTM or Lat/Long): 17 614049E 3945120N
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
5. Property size (acres): _____
6. Nearest body of water (stream/river/sound/ocean/lake): Richland Creek
7. River Basin: Cape Fear River
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
8. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The area surrounding the bridge is forestland.

9. Describe the overall project in detail, including the type of equipment to be used: Plans for replacing the bridge include replacing the current bridge in the same location. Equipment used will include regular equipment utilized on bridge replacement projects.
-
10. Explain the purpose of the proposed work: The purpose is to replace the old bridge that is functionally obsolete and structurally deficient.
-

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: The proposed project will temporary fill .01 acres of Richland Creek. The fill is composed of Class II Riprap and is necessary to facilitate the removal of the old structure.

2. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: _____

Total area of wetland impact proposed: _____

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	Temporary fill in surface waters	60	Richland Creek	25 ft	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 60 ft (temporary)

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): _____

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): _____

Size of watershed draining to pond: _____ Expected pond surface area: _____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

The No-Build or "do nothing" alternative was considered but would eventually necessitate closure of the bridge. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices for the Protection of Surface Waters and BMP's for Bridge Demolition and Removal

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

N/A

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): _____
Amount of buffer mitigation requested (square feet): _____
Amount of Riparian wetland mitigation requested (acres): _____
Amount of Non-riparian wetland mitigation requested (acres): _____
Amount of Coastal wetland mitigation requested (acres): _____

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?

Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

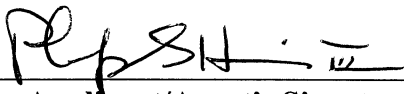
XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes ☐ No ☒

Is this an after-the-fact permit application?
Yes ☐ No ☒

XIV. Other Circumstances (Optional):

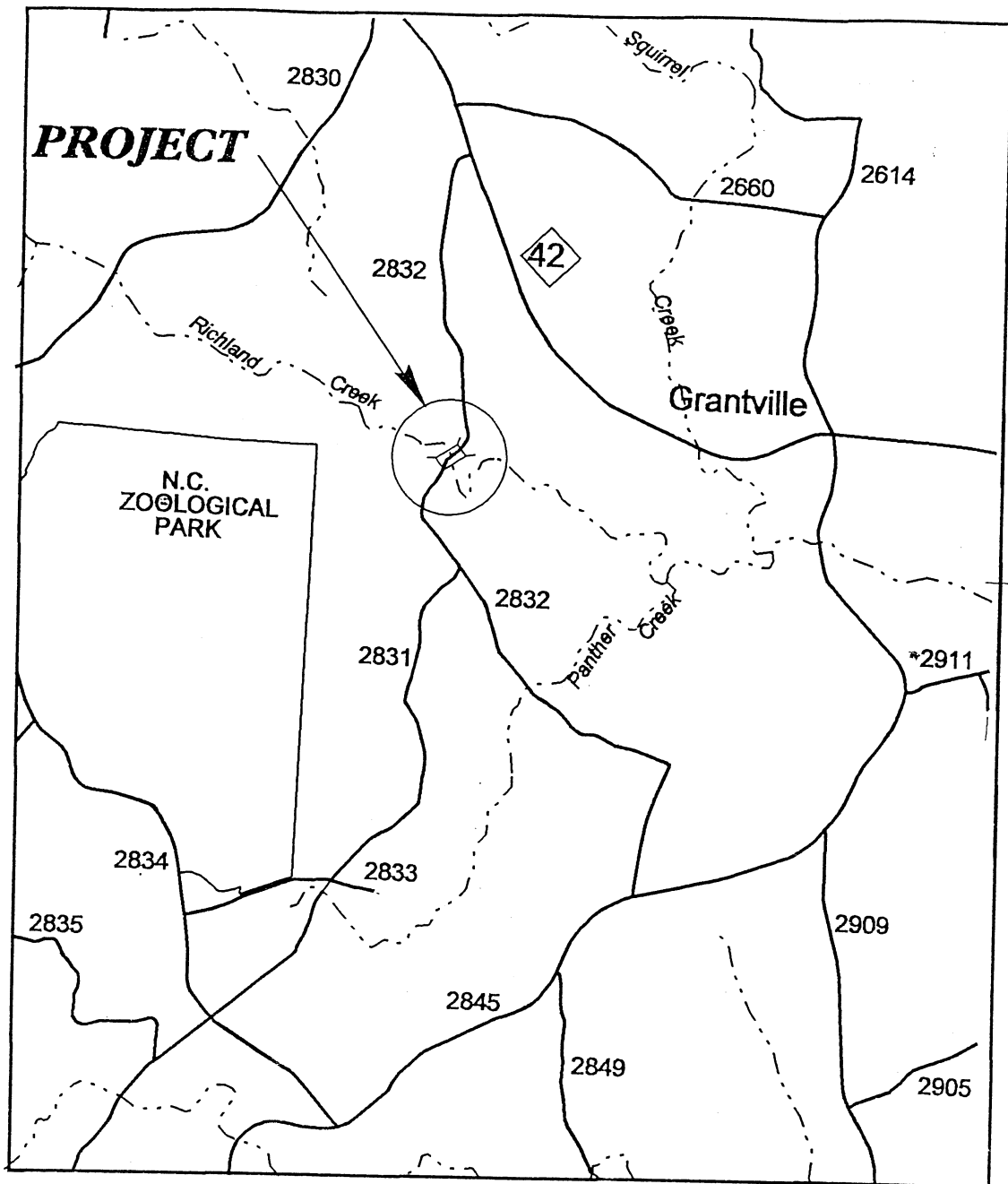
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).



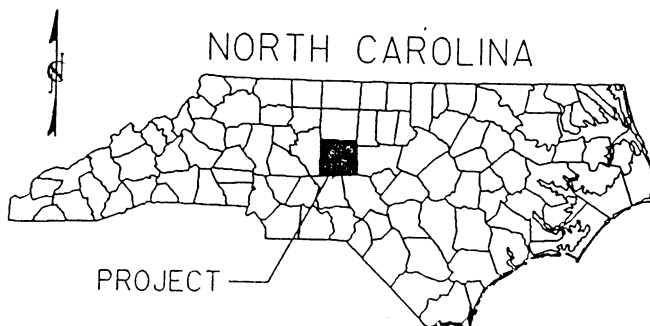
Applicant/Agent's Signature

4/14/04
Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)



VICINITY MAP



NCDOT

DIVISION OF HIGHWAYS
RANDOLPH COUNTY

PROJECT: 8.2572401 (B-3506)
REPLACE BRIDGE NO. 226
OVER RICHLAND CREEK
ON SR 2832

SHEET

OF 7

11/4/03

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
4	TIMOTHY CARTER	2833 FAIRVIEW FARM RD ASHEBORO, NC 27203
5	ERNEST (BUDDY) HAMMER	2708 FAIRVIEW FARM RD. ASHEBORO, NC 27203
2	NC ZOOLOGICAL AUTHORITY	4401 ZOO PARKWAY ASHEBORO, NC 27203
3	BAXTER OLIVER	312 LUCK RD. ASHEBORO, NC 27203

NCDOT

DIVISION OF HIGHWAYS
RANDOLPH COUNTY

PROJECT: 8.2572401 (B-3506)
REPLACE BRIDGE NO. 226
OVER RICHLAND CREEK
ON SR 2832

WETLAND PERMIT IMPACT SUMMARY

[illegible]

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RANDOLPH COUNTY
PROJECT 33120.1.1 B-3506

SHEET 3 OF

11/4/2003

037

See Sheet 1-B For Conventional Symbols
See Sheet 1-C & 1-D For Survey Control Plans

STATE OF NORTH CAROLINA

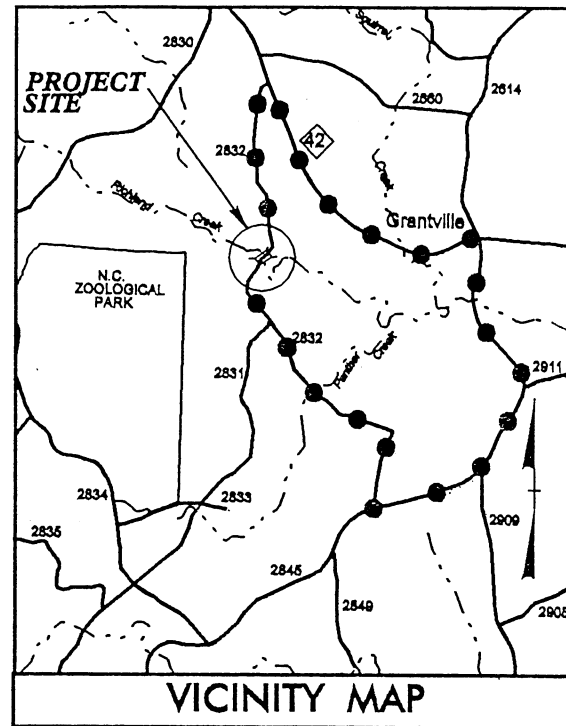
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

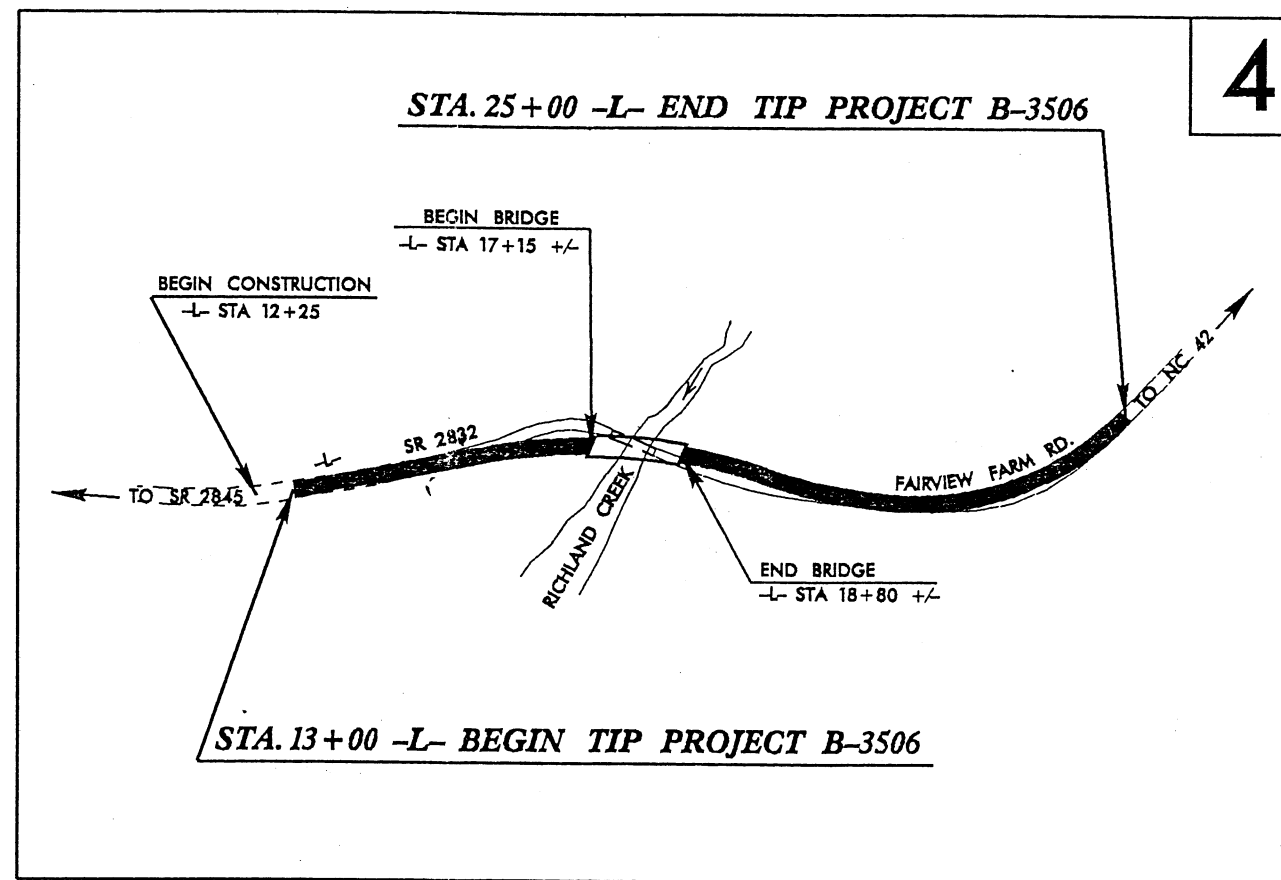
LOCATION: BRIDGE NO. 226 OVER RICHLAND CREEK
ON SR 2832

TYPE OF WORK: DRAINAGE, GRADING, PAVING, GUARDRAIL, AND STRUCTURE

N.C.	B-3506	1
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION
33120.1.1	BRZ-2832(2)	PE
33120.2.2	BRZ-2832(2)	R/W, UTIL.
33120.3.1	BRZ-2832(5)	CONST.



DENOTES OFFSITE DETOUR

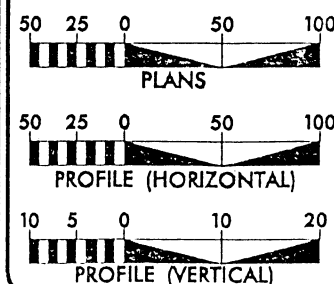


THIS PROJECT IS NOT WITHIN
ANY MUNICIPAL BOUNDARIES

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2004 = 244
ADT 2024 = 393
DHV = 10 %
D = 60 %
*T = 3 %
**V = 60 MPH
* TTST 1 % + DUAL 2 %
FUNC. CLASS = RURAL LOCAL
** DESIGN EXCEPTION REQUIRED
FOR DESIGN SPEED FROM
60 MPH TO 25 MPH

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3506 = 0.196 MI
LENGTH STRUCTURE TIP PROJECT B-3506 = 0.031 MI
TOTAL LENGTH OF TIP PROJECT B-3506 = 0.227 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 19, 2003

LETTING DATE:
SEPTEMBER 26, 2004

BRENDA MOORE, PE
PROJECT ENGINEER

REKHA PATEL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____
ROADWAY DESIGN
ENGINEER

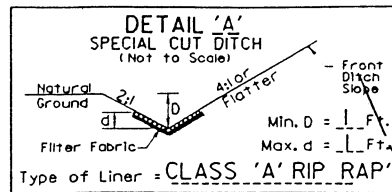
SIGNATURE: _____
DATE: _____

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR
DATE: _____

4 of 7

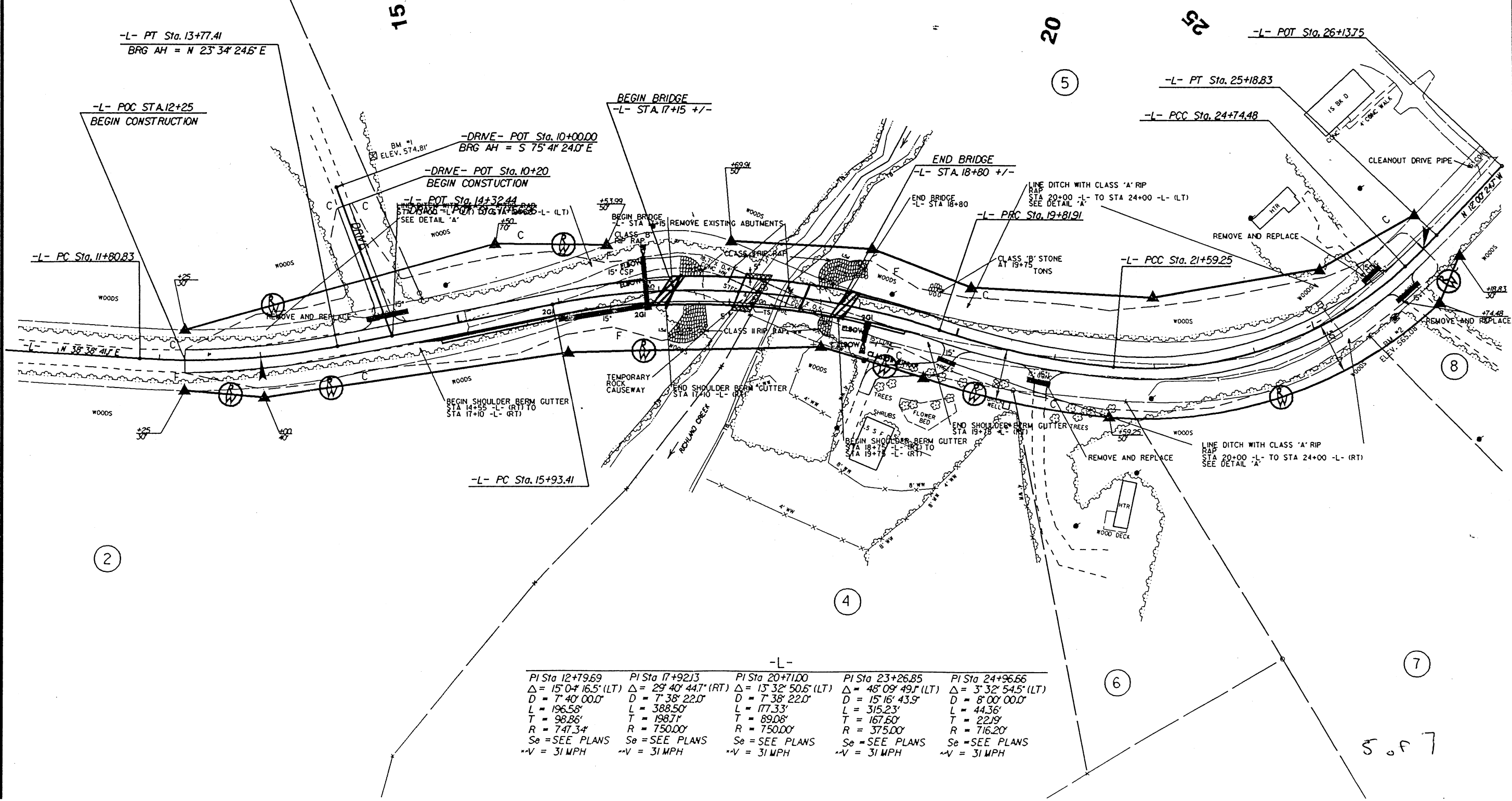


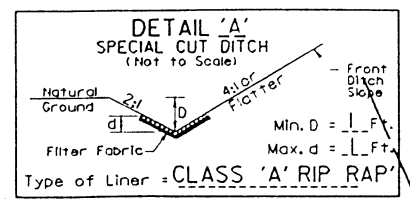
STA 13+00 -L- TO STA 16+50 -L- (LT)
STA 20+00 -L- TO STA 24+00 -L- (LT)
STA 20+00 -L- TO STA 24+00 -L- (RT)

DESIGN EXCEPTION REQUIRED FOR
DESIGN SPEED FROM 60 MPH TO 25 MPH

PROJECT REFERENCE NO. B-3506	SHEET NO. 4
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
ENGLISH	

TS TS DENOTES TEMPORARY
FILL IN SURFACE
WATER





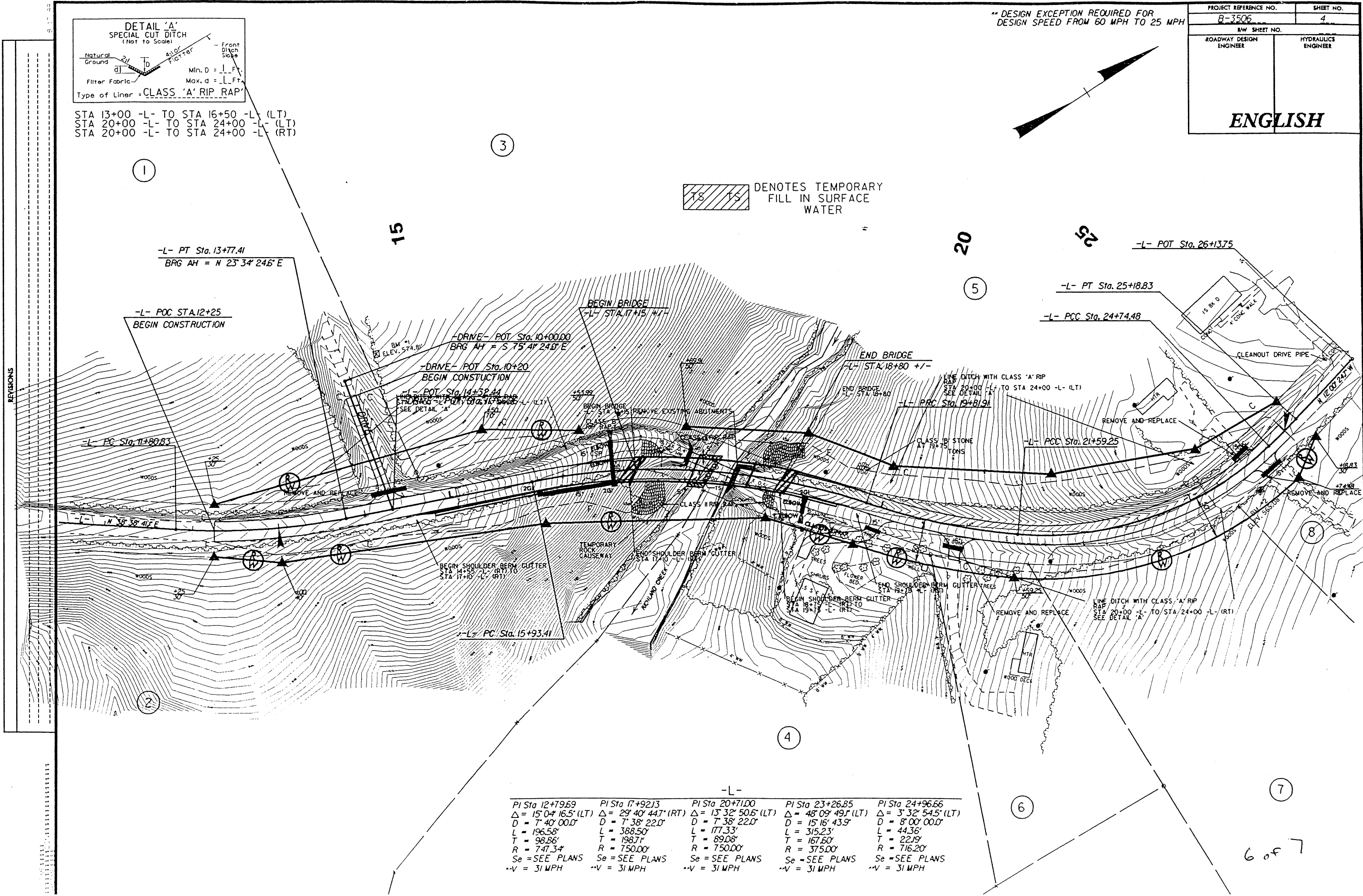
STA 13+00 -L- TO STA 16+50 -L- (LT)
 STA 20+00 -L- TO STA 24+00 -L- (LT)
 STA 20+00 -L- TO STA 24+00 -L- (RT)

** DESIGN EXCEPTION REQUIRED FOR
 DESIGN SPEED FROM 60 MPH TO 25 MPH

PROJECT REFERENCE NO. B-3506	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

TS TS DENOTES TEMPORARY
 FILL IN SURFACE
 WATER



PI Sta 12+79.69	PI Sta 17+92.13	PI Sta 20+71.00	PI Sta 23+26.85	PI Sta 24+96.66
$\Delta = 15^{\circ} 04' 16.5''$ (LT)	$\Delta = 29^{\circ} 40' 44.7''$ (RT)	$\Delta = 13^{\circ} 32' 50.6''$ (LT)	$\Delta = 48^{\circ} 09' 49.1''$ (LT)	$\Delta = 3^{\circ} 32' 54.5''$ (LT)
$D = 7^{\circ} 40' 00.0''$	$D = 7^{\circ} 38' 22.0''$	$D = 7^{\circ} 38' 22.0''$	$D = 15^{\circ} 16' 43.9''$	$D = 8^{\circ} 00' 00.0''$
$L = 196.58'$	$L = 388.50'$	$L = 177.33'$	$L = 315.23'$	$L = 44.36'$
$T = 98.86'$	$T = 198.71'$	$T = 89.08'$	$T = 167.60'$	$T = 22.19'$
$R = 747.34'$	$R = 750.00'$	$R = 750.00'$	$R = 375.00'$	$R = 716.20'$
$Se = SEE PLANS$	$Se = SEE PLANS$	$Se = SEE PLANS$	$Se = SEE PLANS$	$Se = SEE PLANS$
$W = 31 MPH$	$W = 31 MPH$	$W = 31 MPH$	$W = 31 MPH$	$W = 31 MPH$

**DESIGN EXCEPTION REQUIRED FOR
DESIGN SPEED FROM 60 MPH TO 25 MPH

PROJECT REFERENCE NO.	SHEET NO.
B-3506	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

BM #1 RR SPIKE IN BASE OF 15' PINE
BL- STA 9+14, 187' LT
ELEV = 574.81

BM #2 RR SPIKE IN BASE OF POWER POLE
BL- STA 19+51, 23' RT
ELEV = 565.88

BEGIN GRADE - L- STA. 13+00
EL. 559.49

END GRADE - L- STA. 25+00
EL. 567.02

PI = 13+45.00
EL = 557.48
VC = 90
K = 27
*V = 34 MPH

PI = 24+00.00
EL = 564.84
VC = 165
K = 13
*V = 35 MPH

PI = 20+05.00
EL = 505.70
VC = 600
K = 28
*V = 25 MPH

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 7005 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 501.52 FT
BASE DISCHARGE	= 3494 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 509.18 FT
OVERTOPPING DISCHARGE	= 12432 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 521.2 FT

BEGIN BRIDGE - L- STA. 17+15 -/-

END BRIDGE - L- STA. 18+00 -/-

ELEV 495
1.34' TEMPORARY ROCK
CROSSWAY
CLASS IIR RAP

PI = 10+30.00
EL = 555.00
VC = 20
K = 3

-DRIVE-

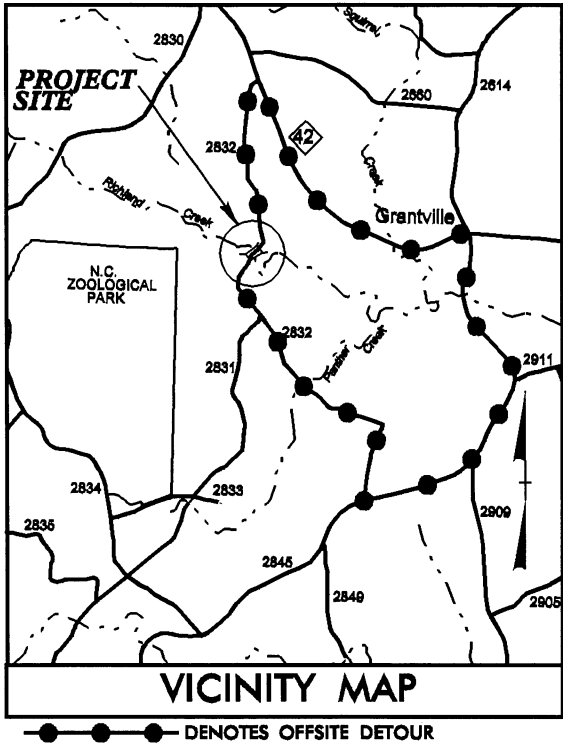
PI = 11+30.00
EL = 550.22
VC = 30
K = 2

END GRADE - DRIVE - STA. 11+45.82
-L- STA. 14+30.84, 11' LT
EP EL. 550.54

BEGIN GRADE - DRIVE - STA. 10+20.00
EL. 558.83

Sheet 7 of 7

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheet 1-C & 1-D For Survey Control Plans



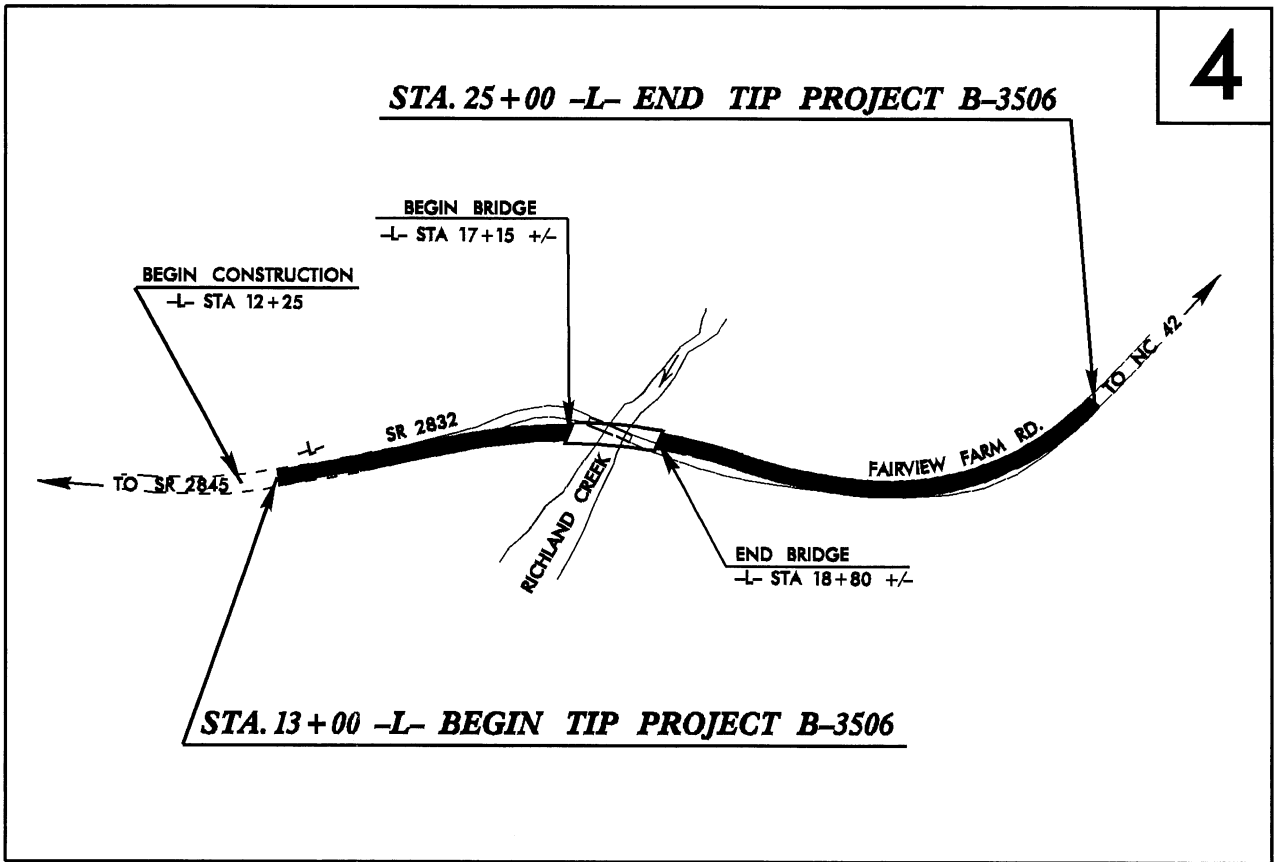
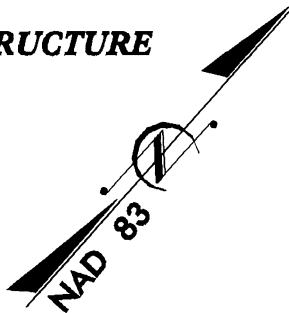
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

LOCATION: **BRIDGE NO. 226 OVER RICHLAND CREEK
ON SR 2832**

TYPE OF WORK: **DRAINAGE, GRADING, PAVING, GUARDRAIL, AND STRUCTURE**

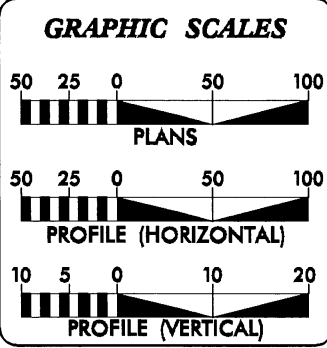
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3506	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33120.1.1	BRZ-2832(2)	PE	
33120.2.2	BRZ-2832(2)	R/W, UTIL.	
33120.3.1	BRZ-2832(5)	CONST.	



THIS PROJECT IS NOT WITHIN
ANY MUNICIPAL BOUNDARIES

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA	
ADT 2004 =	244
ADT 2024 =	393
DHV =	10 %
D =	60 %
* T =	3 %
** V =	60 MPH
* TTST 1 % + DUAL 2 %	
FUNC. CLASS =	RURAL LOCAL
** DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED FROM 60 MPH TO 25 MPH	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-3506	= 0.196 MI
LENGTH STRUCTURE TIP PROJECT B-3506	= 0.031 MI
TOTAL LENGTH OF TIP PROJECT B-3506	= 0.227 MI

Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2002 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: SEPTEMBER 19, 2003	BRENDA MOORE, PE PROJECT ENGINEER
LETTING DATE: SEPTEMBER 26, 2004	REKHA PATEL, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER
SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
STATE DESIGN ENGINEER	P.E.
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED DIVISION ADMINISTRATOR	DATE

TIP PROJECT: B-3506

CONTRACT: C200959

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement	---
Curb	---
Prop. Slope Stakes Cut	---
Prop. Slope Stakes Fill	---
Prop. Woven Wire Fence	---
Prop. Chain Link Fence	---
Prop. Barbed Wire Fence	---
Prop. Wheelchair Ramp	---
Curb Cut for Future Wheelchair Ramp	---
Exist. Guardrail	---
Prop. Guardrail	---
Equality Symbol	---
Pavement Removal	---

RIGHT OF WAY

Baseline Control Point	---
Existing Right of Way Marker	---
Exist. Right of Way Line w/Marker	---
Prop. Right of Way Line with Proposed	---
RW Marker (Iron Pin & Cap)	---
Prop. Right of Way Line with Proposed	---
(Concrete or Granite) RW Marker	---
Exist. Control of Access Line	---
Prop. Control of Access Line	---
Exist. Easement Line	---
Prop. Temp. Construction Easement Line	---
Prop. Temp. Drainage Easement Line	---
Prop. Perm. Drainage Easement Line	---

HYDROLOGY

Stream or Body of Water	---
River Basin Buffer	---
Flow Arrow	---
Disappearing Stream	---
Spring	---
Swamp Marsh	---
Shoreline	---
Falls, Rapids	---
Prop Lateral, Tail, Head Ditches	---

STRUCTURES

MAJOR	---
Bridge, Tunnel, or Box Culvert	---
Bridge Wing Wall, Head Wall and End Wall	---

MINOR

Head & End Wall	---
Pipe Culvert	---
Footbridge	---
Drainage Boxes	---
Paved Ditch Gutter	---

UTILITIES

Exist. Pole	---
Exist. Power Pole	---
Prop. Power Pole	---
Exist. Telephone Pole	---
Prop. Telephone Pole	---
Exist. Joint Use Pole	---
Prop. Joint Use Pole	---
Telephone Pedestal	---
UG Telephone Cable Hand Hold	---
Cable TV Pedestal	---
UG TV Cable Hand Hold	---
UG Power Cable Hand Hold	---
Hydrant	---
Satellite Dish	---
Exist. Water Valve	---
Sewer Clean Out	---
Power Manhole	---
Telephone Booth	---
Cellular Telephone Tower	---
Water Manhole	---
Light Pole	---
H-Frame Pole	---
Power Line Tower	---
Pole with Base	---
Gas Valve	---
Gas Meter	---
Telephone Manhole	---
Power Transformer	---
Sanitary Sewer Manhole	---
Storm Sewer Manhole	---
Tank; Water, Gas, Oil	---
Water Tank With Legs	---
Traffic Signal Junction Box	---
Fiber Optic Splice Box	---
Television or Radio Tower	---
Utility Power Line Connects to Traffic	---
Signal Lines Cut Into the Pavement	---

Recorded Water Line	---
Designated Water Line (S.U.E.*)	---
Sanitary Sewer	---
Recorded Sanitary Sewer Force Main	---
Designated Sanitary Sewer Force Main(S.U.E.*)	---
Recorded Gas Line	---
Designated Gas Line (S.U.E.*)	---
Storm Sewer	---
Recorded Power Line	---
Designated Power Line (S.U.E.*)	---
Recorded Telephone Cable	---
Designated Telephone Cable (S.U.E.*)	---
Recorded U/G Telephone Conduit	---
Designated U/G Telephone Conduit (S.U.E.*)	---
Unknown Utility (S.U.E.*)	---
Recorded Television Cable	---
Designated Television Cable (S.U.E.*)	---
Recorded Fiber Optics Cable	---
Designated Fiber Optics Cable (S.U.E.*)	---
Exist. Water Meter	---
U/G Test Hole (S.U.E.*)	---
Abandoned According to U/G Record	---
End of Information	---

BOUNDARIES & PROPERTIES

State Line	---
County Line	---
Township Line	---
City Line	---
Reservation Line	---
Property Line	---
Property Line Symbol	---
Exist. Iron Pin	---
Property Corner	---
Property Monument	---
Property Number	---
Parcel Number	---
Fence Line	---
Existing Wetland Boundaries	---
High Quality Wetland Boundary	---
Medium Quality Wetland Boundaries	---
Low Quality Wetland Boundaries	---
Proposed Wetland Boundaries	---
Existing Endangered Animal Boundaries	---
Existing Endangered Plant Boundaries	---

BUILDINGS & OTHER CULTURE

Buildings	---
Foundations	---
Area Outline	---
Gate	---
Gas Pump Vent or U/G Tank Cap	---
Church	---
School	---
Park	---
Cemetery	---
Dam	---
Sign	---
Well	---
Small Mine	---
Swimming Pool	---

TOPOGRAPHY

Loose Surface	---
Hard Surface	---
Change in Road Surface	---
Curb	---
Right of Way Symbol	---
Guard Post	---
Paved Walk	---
Bridge	---
Box Culvert or Tunnel	---
Ferry	---
Culvert	---
Footbridge	---
Trail, Footpath	---
Light House	---

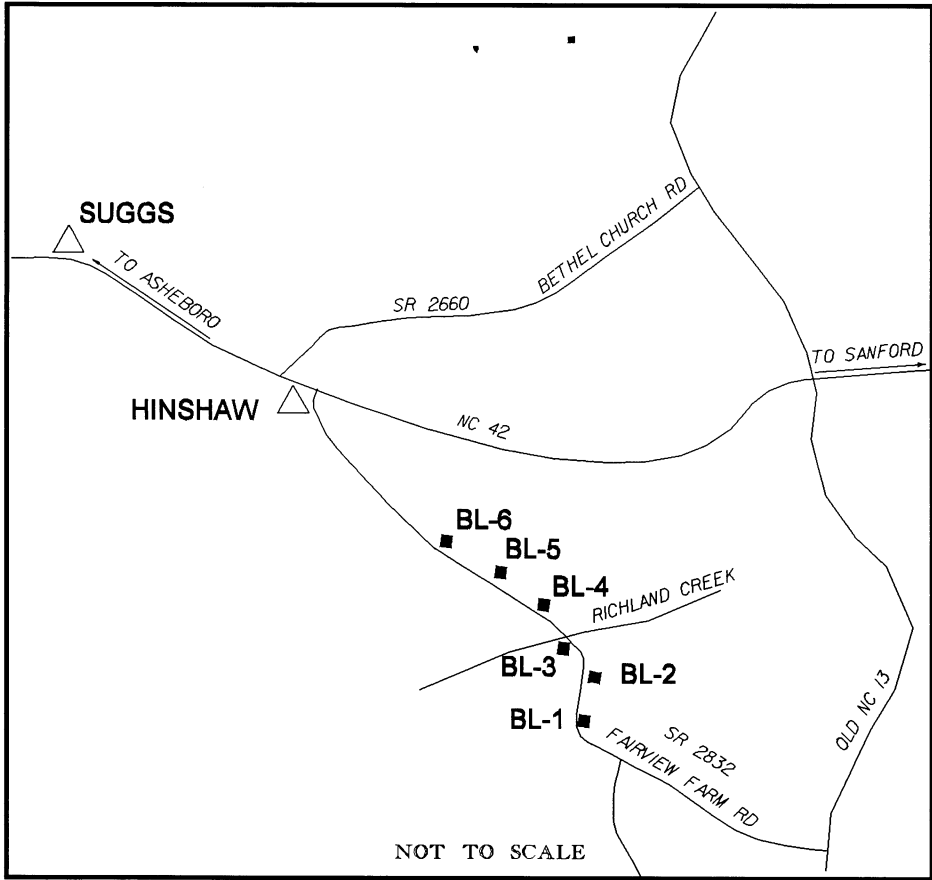
VEGETATION

Single Tree	---
Single Shrub	---
Hedge	---
Woods Line	---
Orchard	---
Vineyard	---

RAILROADS

Standard Gauge	---
RR Signal Milepost	---
Switch	---

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3506	1C	
LOCATION AND SURVEYS			



SURVEY CONTROL SHEET B-3506

NOTES

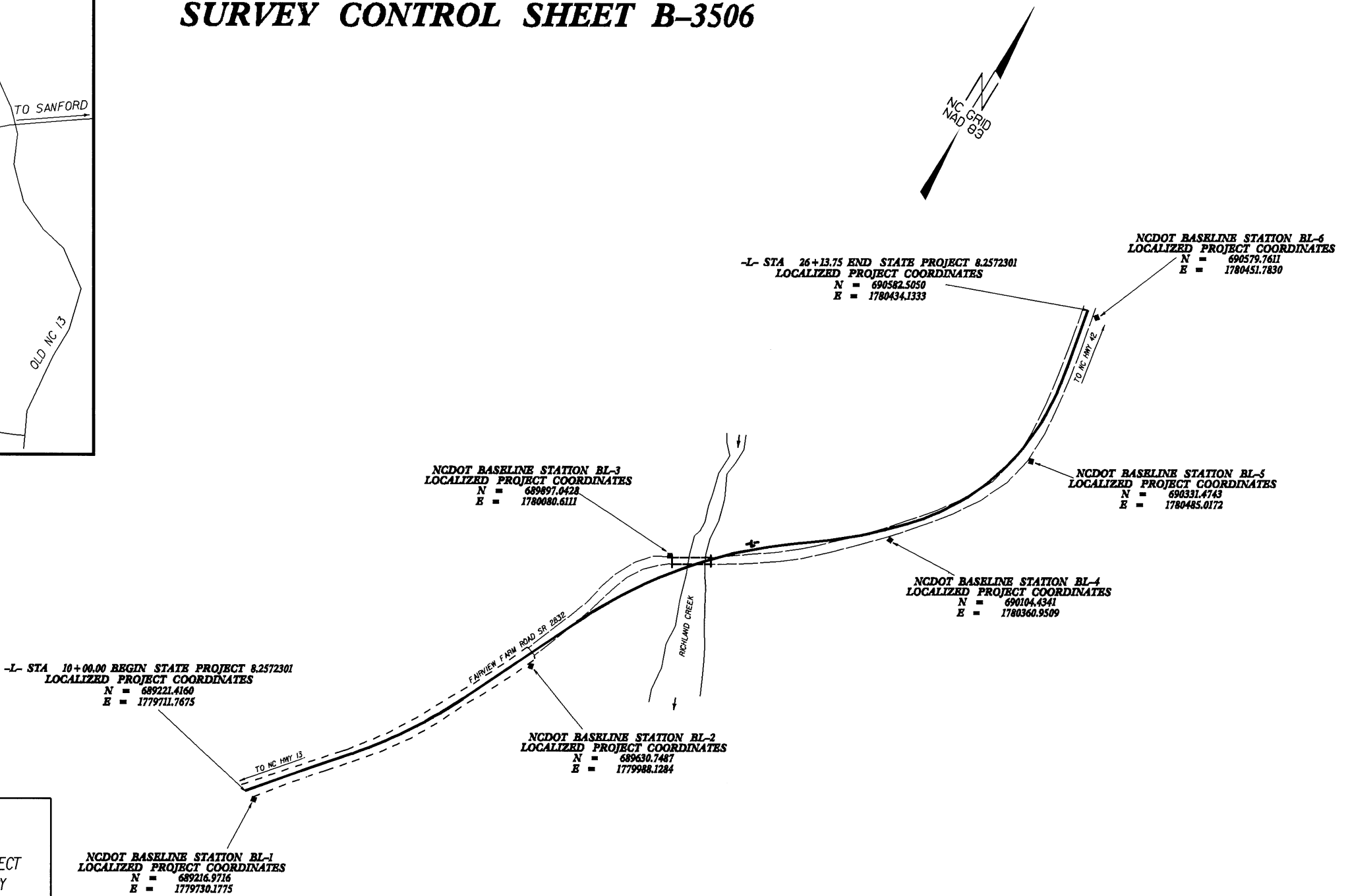
THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING 'PROJECT CONTROL DATA' AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
B3506_LS_CONTROL_030326.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "HINSHAW" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 696486.8911(ft) EASTING: 1780134.5498(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998726 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "HINSHAW" TO -L- STATION 10+00 IS S 3° 19' 49.15" W 7,277.7656 FT. ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29



◆ INDICATES CONTROL MONUMENTS SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING EXISTING NCGS MONUMENTS.

THIS SURVEY WAS DONE CONVENTIONALLY WITHOUT USING GLOBAL POSITIONING SYSTEMS

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET B-3506

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		BL-1	689216.9716	1779730.1775	565.91	10+00.03	17.15 RT
2		BL-2	689630.7487	1779988.1284	551.33	14+94.18	16.87 RT
3		BL-3	689897.0428	1780080.6111	512.92	17+70.69	26.45 LT
4		BL-4	690104.4341	1780360.9509	535.72	21+12.49	17.28 RT
5		BL-5	690331.4743	1780485.0172	561.99	23+63.04	23.63 RT
6		BL-6	690579.7611	1780451.7830	568.34	26+07.39	16.69 RT

BM+1 ELEVATION = 574.81
N 689667 E 1779791
L STATION 14+49 178 LEFT

BM +2 ELEVATION = 565.08
N 690408 E 1780498
L STATION 24+35 33 RIGHT

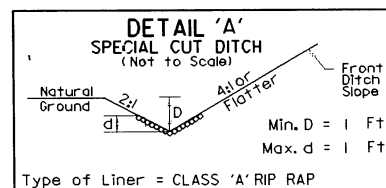
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCGS FOR MONUMENT "HINSHAW"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 696486.8911(ft) EASTING: 1780134.5498(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9998726
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"HINSHAW" TO -L- STATION 10+00 IS
S 3° 19' 49.15" W 7,277.7656FT.
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

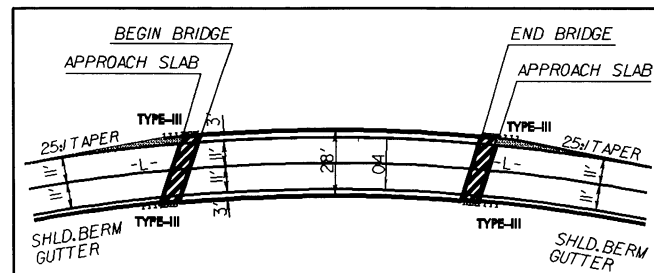
NOTES

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY
BY SELECTING "PROJECT CONTROL DATA" AT:
[HTTP://WWW.DOHDOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
THE FILES TO BE FOUND ARE AS FOLLOWS:
B3506_LS_CONTROL_030326.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE
LOCATION AND SURVEYS UNIT.

25-FEB-2004 11:02
P:\Roadway\Proj\B3506.PSH

STA 13+00 -L- TO STA 16+50 -L- (LT)
STA 20+00 -L- TO STA 24+00 -L- (LT)
STA 20+00 -L- TO STA 24+00 -L- (RT)



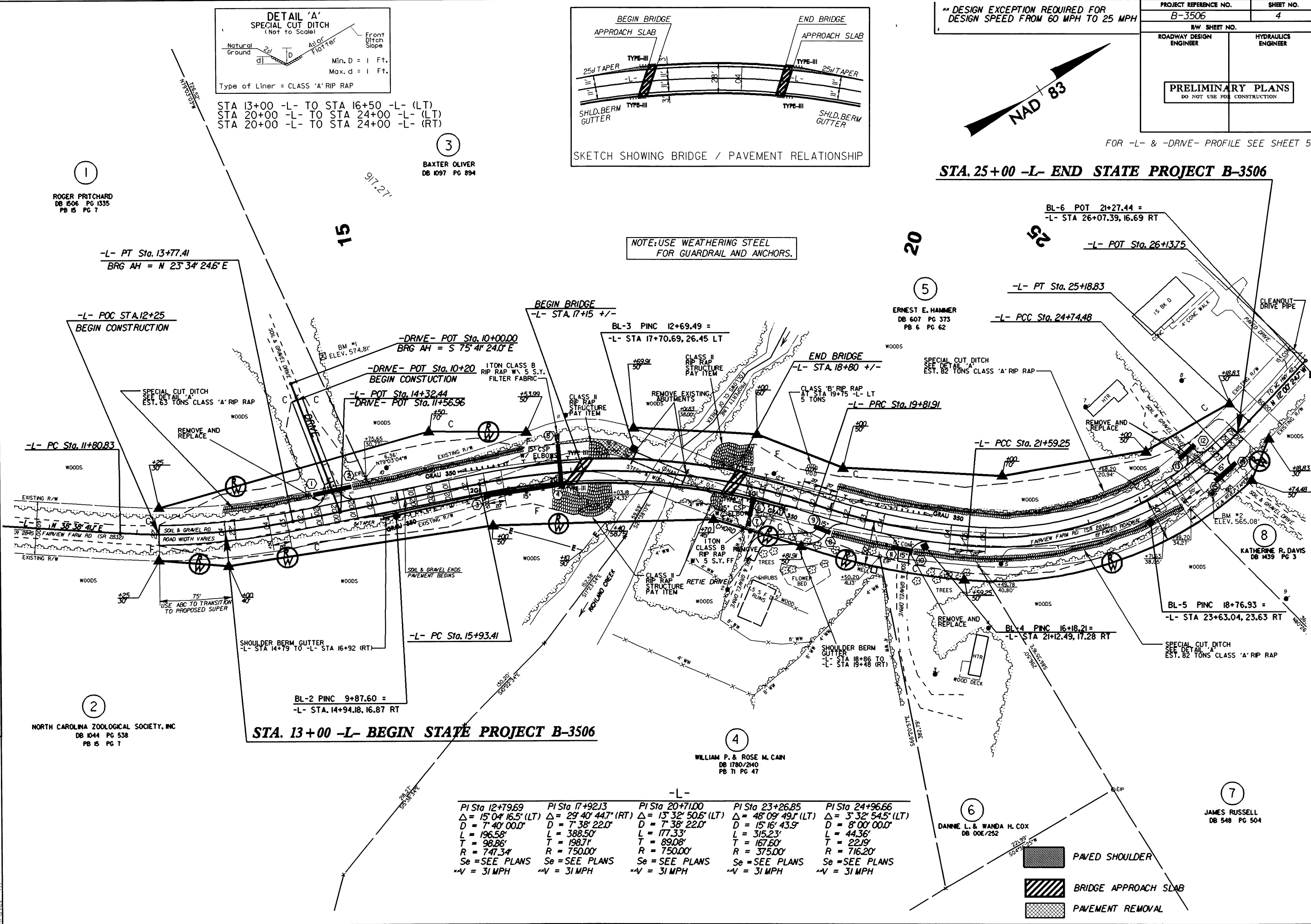
SKETCH SHOWING BRIDGE / PAVEMENT RELATIONSHIP

xx DESIGN EXCEPTION REQUIRED FOR
DESIGN SPEED FROM 60 MPH TO 25 MPH

PROJECT REFERENCE NO.	SHEET NO.
B-3506	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<div style="border: 1px solid black; padding: 10px; text-align: center;"> PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION </div>	

FOR -L- & -DRIVE- PROFILE SEE SHEET 5

STA. 25+00 -L- END STATE PROJECT B-3506



*No. 100-2-92
M.L. Reese*

Randolph County
Bridge No. 226 on SR 2832 (Fairview Farm Road)
over Richland Creek
Federal Aid Project No. BRZ-2832(2)
State Project No. 8.2572401
T.I.P. No. B-3506

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROVED:

6/19/03
DATE

for *Gregory J. Thorpe*
Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch, NCDOT

7/15/03
DATE

for *John F. Sullivan, III*
John F. Sullivan, III, P.E.
Division Administrator, FHWA

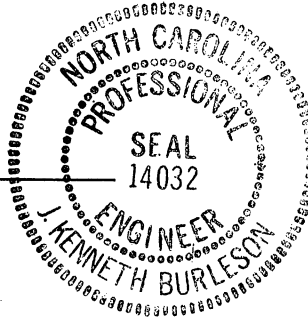
Randolph County
Bridge No. 226 on SR 2832 (Fairview Farm Road)
over Richland Creek
Federal Aid Project No. BRZ-2832(2)
State Project No. 8.2572401
T.I.P. No. B-3506

CATEGORICAL EXCLUSION

June 2003

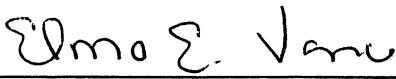
Documentation Prepared by:
TGS Engineers


J. Kenneth Burleson, P.E.
Project Manager



6/19/03
Date

for the North Carolina Department of Transportation
Project Development and Environmental Analysis Branch


Elmo E. Vance
Project Manager

PROJECT COMMITMENTS

Randolph County
Bridge No. 226 on SR 2832 (Fairview Farm Road)
over Richland Creek
Federal Aid Project No. BRZ-2832(2)
State Project No. 8.2572401
T.I.P. No. B-3506

If the implementation of this project involves a disturbance to the waters of Richland Creek, a Nationwide Section 404 permit and a Section 401 Water Quality permit will be required. If so, any foreseen secondary impacts to water resources from soil disturbance on any downstream systems can be minimized by the use of Best Management Practices (BMPs). No long term impacts are expected as a result of the proposed project.

Division 8:

- A. To minimize impacts to fish spawning, an in-water construction moratorium is required from April 1 to June 15.
- B. Soil and Erosion Control Measures for High Quality Waters will be installed at the project site and maintained throughout project construction.

Highway Design Branch & Division 8:

- C. The North Carolina Zoological Park will obtain the existing pony truss bridge for future use as a pedestrian crossing. The project contract will stipulate that the existing truss bridge be removed and stored by the contractor at a location on Zoo property to be designated by the North Carolina Zoological Park.
- D. The North Carolina Zoological Park officials desire to obtain the rock in the existing abutments for future use. The project contract will stipulate that this rock be removed and stored at a location on Zoo property to be designated by the NC Zoological Park. NCDOT will coordinate this disposal of the existing rock abutments with the NC Zoological Park.
- E. The North Carolina Zoological Park officials have requested the use of fescue in lieu of lespedeza as erosion control ground cover to reduce the likelihood of its spread into sensitive plant areas.

- F. NC Zoological Park officials will be invited to attend and comment at the project field inspection.

Roadway Design & Hydraulics Units:

- G. If at all possible, care should be taken during drainage design to avoid placing a ditch at the base of the fill slope on the NC Zoological Park property in the southeast quadrant of the project.

Roadway Design & Structure Design Units:

- H. The replacement structure design will include the one-bar anodized metal rail bridge rail. The design should include matching guardrails and end treatments.

Randolph County
Bridge No. 226 on SR 2832 (Fairview Farm Road)
over Richland Creek
Federal Aid Project No. BRZ-2832(2)
State Project No. 8.2572401
T.I.P. No. B-3506

INTRODUCTION: Randolph County Bridge No. 226 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

I. PURPOSE AND NEED STATEMENT

NCDOT Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 21.8 out of a possible 100 for a new structure. The bridge is considered functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The subject bridge is located in the southeastern part of Randolph County on SR 2832 (Fairview Farm Road) approximately 1.3 miles (2.1 kilometers) south of the intersection with NC 42 toward SR 2831 (Cane Mill Road) (see Figure 1). Farmlands, woodlands, single family residences, mobile homes, and open space are located along SR 2832. The land use surrounding Bridge No. 226 is rural/farming and woodlands (see Figure 2). According to Randolph County planning representatives, there is land available for residential use along SR 2832, but there are no plans for any major subdivisions at the current time.

SR 2832 is classified as a rural local route in the Statewide Functional Classification System. The route at the crossing is signed as SR 2831, but maps and inspection reports list the route as SR 2832. This route is not a designated bicycle route nor is it listed in the TIP as needing incidental bicycle accommodations.

SR 2832 has a 20-foot (6.1-meter) pavement width 4-foot (1.2-meter) grass shoulders from the intersection with NC 42 to 400 feet (121.9 meters) north of the bridge. From 400 feet (121.9 meters) north of the bridge to 300 feet (91.4 meters) south of the bridge, SR 2832 has an 11-foot (3.4-meter) wide bituminous surface treatment. At 300 feet (91.4 meters) south of the bridge, SR 2832 becomes a one lane dirt/gravel road for approximately 2.0 miles (3.2 kilometers) until it intersects with SR 2845 (Old NC 13). The existing bridge is on a tangent with curves north and south of the bridge. The roadway is approximately 23 feet (7.0 meters) above the river bed.

The current traffic volume of 225 vehicles per day (VPD) is expected to increase to 450 VPD by the year 2030. The projected volume includes 1 percent truck-tractor semi-trailer (TTST)

and 2 percent dual-tired vehicles (DT). The speed limit is not posted on SR 2832; therefore, the statutory speed limit is 55 miles (88 kilometers) per hour..

Existing Bridge No. 226 is a one-span, one-lane pony truss structure with a timber deck (see Figure 3). The substructure consists of concrete caps and rubble masonry piers. The existing bridge was erected in this location in 1940. The overall length of the structure is 62 feet (18.9 meters). The clear roadway width is 11.2 feet (3.4 meters). The posted weight limit on this bridge is 7 tons for single vehicles (SV) and 13 tons for truck tractor semitrailers (TTST's).

Utility impacts are anticipated to be low and there are none attached to the existing structure.

No accidents were reported in the vicinity of Bridge No. 226 during the period from January 2000 through December 2002. Three school buses cross the bridge twice daily.

III. ALTERNATIVES

A. Project Description

This project will be designed to meet the AASHTO requirements for a design speed of 25 miles (40 kilometers) per hour to reflect the character of the remainder of the route. The proposed replacement structure will have a length of approximately 120 feet (36.6 meters) with a 28-foot (8.5-meter) clear roadway width. The replacement structure will require a spill-through abutment on each end. This structure will provide two 11-foot (3.4-meter) lanes with 3-foot (0.9-meter) shoulders on each side (see Figure 4).

The proposed bridge length is based on a preliminary hydraulic analysis. The final design of the bridge will be such that the backwater elevation will not encroach beyond the current 100-year floodplain limits. The length of the new structure may be increased or decreased as necessary to accommodate peak flows as determined from a more detailed hydraulic analysis to be performed during the final design phase of the project.

The approaches will provide a 22-foot (6.7-meter) pavement width with 6-foot (1.8-meter) grass shoulders at the bridge. The proposed typical sections of the approaches and bridge are included in Figure 4.

B. Build Alternatives

The two build alternates for replacing Bridge No. 226 considered for this bridge replacement are described below:

Alternate 1 involves replacement of the structure on a new alignment to the east of its existing location. The alignment will require approximately 1000 feet (305 meters)

of new approaches. The new structure will be approximately 65 feet (20 meters) downstream of its existing location. The existing structure and approaches will serve to maintain traffic on-site during the construction period (see Figure 2).

This alternative will improve the existing sharp curves located to the north and south of the bridge; however, implementation of this alternative will require higher right-of-way cost because property located in the eastern quadrants will be acquired for the new roadway alignment.

Alternate 2 (Preferred) involves replacement of the bridge over the existing location. Approximately 1200 feet (366 meters) of new approaches will be constructed to improve the existing horizontal and vertical alignment. This alternative will also improve the existing sharp curves located to the north and south of the bridge.

Traffic will be detoured off-site during construction. The proposed detour as shown in Figure 1 includes SR 2832, NC 42 and SR 2845 and is approximately 8.5 miles (13.7 kilometers) in length. The unpaved 2.0 miles (3.2 kilometers) of SR 2832 is not anticipated to be paved as part of this project. NC 42 and SR 2845 are paved two-lane routes. This detour route contains two stream crossings; Bridge No. 218 located on SR 2845 which is posted 27 tons SV and 32 tons TTST, and Bridge No. 55 located on NC 42 which is not posted.

C. Alternatives Eliminated from Further Study

The "Do-Nothing" or No-Build alternative will eventually necessitate closure of the bridge. This option is not desirable due to the service provided by the route.

"Rehabilitation" of the existing bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Bridge No. 226 is recommended to be replaced over the existing location improving the existing alignment as shown by Alternate 2 in Figure 2. This alternative is preferred because it has a minimal impact on adjacent properties, and is less disruptive to the natural environment.

The Division 8 Engineers Office concurs with Alternate 2 as the preferred alternative and the use of NC 42 and SR 2845 as the off-site detour route. They have requested that the intersection of SR 2832 and SR 2845 be signed to indicate "local traffic only" on SR 2832.

IV. ESTIMATED COSTS

The estimated costs for the two alternatives, based on current prices, are as follows:

	Alternate 1	Alternate 2 (Preferred)
Structure	\$254,100	\$254,100
Roadway Approaches	216,890	215,014
Detour Structure and Approaches	NA	NA
Structure Removal	5,200	5,200
Misc. & Mob.	138,810	135,686
Eng. & Contingencies	85,000	90,000
Total Construction Cost	\$ 700,000	\$ 700,000
Right-of-Way Costs	\$ 47,000	\$ 35,975
Total Project Cost	\$ 747,000	\$735,975

The estimated cost of the project, shown in the 2002-2008 NCDOT Transportation Improvement Program (TIP), is \$439,000, including \$29,000 for right-of-way, \$350,000 for construction and \$60,000 spent in prior years.

V. NATURAL RESOURCES

A review of the project area has been undertaken to evaluate natural resource features likely to be affected by the project. Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic mapping (Ramseur, NC 7.5 minute quadrangle, 1981), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (FWS NWI 1994), and aerial photography.

The study corridor nears the northeast corner of the North Carolina Zoological Park and is approximately 2.0 miles (3.2 kilometers) south of NC 42 on SR 2832 at Richland Creek in Randolph County. The study corridor includes the eastward-flowing Richland Creek and surrounding landscape. Together, the stream and the north/south oriented SR 2832 divide the study corridor into four quadrants (northeast, southeast, southwest, and northwest). Along the northern stream bank, the slope of the land rises moderately, while the topography is steeper along the southern side.

The stream exits the corridor in an east/southeasterly fashion before joining the Deep River approximately 10 miles (16 kilometers) to the east. The Deep River forms the head-waters of the Cape Fear River at its convergence with the Haw River.

A. Methodology

A natural resource field investigation for Bridge No. 226 was conducted on April 10, 2001. The study corridor was walked and visually inspected for significant features. For purposes of the field visit, the study corridor was assumed to be approximately 1000 feet (305 meters) in length, with its width 200 feet (61 meters) from centerline east of SR 2832 and 100 feet (30.5 meters) from centerline west of SR 2832 to ensure proper coverage of both alternatives. Plant community impact calculations provided in this report are based on individual corridors centered on each of the two alternatives (Figure 2). Actual impacts will be limited to construction limits and are expected to be less than those shown for the alternative corridors. Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in Richland Creek.

Plant community descriptions are based on a classification system utilized by North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968), with adjustments made to reflect more current nomenclature. Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Wetland jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitats used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Webster *et al.* 1985, Potter *et al.* 1980, Martof *et al.* 1980, Rohde *et al.* 1994, Menhinick 1991, Palmer and Braswell 1995). Fish and wildlife nomenclature follow current standards. Water quality information for area streams and tributaries was derived from available sources (DWQ 1997, DWQ 2000). Quantitative sampling was not undertaken to support existing data.

The FWS listing of federally protected species with ranges which extend into Randolph County was obtained prior to initiation of the field investigation. In addition, NHP records documenting presence of federally or state listed species were consulted before commencing the field investigation.

B. Physiography and Soils

Land use within the study corridor includes forest and residential land. Within the study corridor, Richland Creek remains largely buffered with natural vegetation

except for nearly a 200-foot (71-meter) section along the bank in the northeast quadrant, which is a grassed residential yard, cleared and containing a goat and duck pen.

The study corridor is located in the Carolina Slate Belt System within the Piedmont physiographic province of North Carolina. This system is characterized by a landscape containing periodic knoll and saddle features with relatively small valley sides. Minor streams have small to moderately sloping channels and often join main streams at nearly right angles as predetermined by the underlying bedrock structure. Soil systems are characterized by high silt content and tend to be thicker on smoother segments than along irregularities within the slate belt (Daniels *et al.* 1999). Within the study corridor, the hilly topography ranges in elevation from approximately 495 feet (151 meters) National Geodetic Vertical Datum (NGVD) at stream side to 540 feet (165 meters) NGVD at the southern quadrant of the study corridor (USGS Ramseur, NC quadrangle).

The Natural Resources Conservation Service (USDA 1997) indicates the following soils are within the study corridor: Riverview loam surrounding the riverbed along the southeastern quadrant of the study corridor; Georgeville silt loam along the north and southeastern quadrant of the corridor; Uwharrie silt loam along the north and southwestern quadrants of the corridor.

The Riverview series consists of very level and deep, well-drained floodplain soils, with slopes of 0 to 2 percent. These soils formed in moderately coarse textured recent alluvium. The Georgeville series consists of well-drained soils on strongly sloping uplands formed in residuum from Carolina slates and other fine grained rocks. Slopes are typically from 8 to 15 percent. The Uwharrie series consists of deep, well-drained soils on moderately steep to steep uplands. Slopes range from 15 to 45 percent, and the soil contains a substantial amount of stones and boulders scattered over the surface.

Of the predominant soil map units in the study corridor, the Natural Resources Conservation Service lists only the Riverview series as hydric, or soils that are saturated or flooded for very long to significant periods during the growing season, and support woody vegetation under natural conditions (USDA 1996).

C. Water Resources

1. Waters Impacted

The study corridor is located within sub-basin 03-06-09 (Deep River and Tributaries) of the Cape Fear River Basin (DWQ 2000). This area is part of USGS accounting unit 03030003 of the South Atlantic-Gulf Coast Region. The section of Richland Creek crossed by the subject bridge has been assigned

Stream Index Number 17-22 by the N.C. Division of Water Quality (DWQ 2000).

2. Stream Characteristics

Bridge No. 226 is approximately 10 miles (16 kilometers) southeast of Asheboro. Richland Creek is a third-order stream within the Deep River watershed, a sub-basin of the Cape Fear River basin. Within the study corridor, Richland Creek shows slight sinuosity with noticeable riffle and pool sequences. The drainage area at the crossing is 31.9 square miles (82.6 square kilometers). During the field visit, water level was in a moderate stage, flowing within an entrenched river channel that contains much organic debris (limbs and leaves). Within the clear water stream, algae covers submerged rocks, and pockets of shade are provided by the riparian tree canopy.

The current location of Bridge No. 226 divides the geomorphology of Richland Creek within the study corridor. Upstream, the stream flows rapidly down a moderately narrow and steep terrain with boulder/cobble deposits and exposed bedrock. During the field visit, the width of the stream section up-river from the bridge averaged 20 feet (6.1 meters) with water depths varying between 0.5 and 2.0 feet (0.15 and 0.6 meters) and river banks ranging from 4 to 6 feet (1.2 to 1.8 meters). However, downstream of the crossing, the stream flattens and the sandy river channel widens which slows the flow and creates numerous secondary circulation cells. The channel width increases to nearly 50 feet (15.2 meters) and ranges from 1.0 to 3.0 feet (0.3 to 0.9 meters) in depth with bank heights varying from 2 to 6 feet (0.6 to 1.8 meters).

A best usage classification of C has been assigned to Richland Creek. The designation C denotes waters that are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation refers to wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1.0 mile (1.6 kilometers) of the study corridor. The study corridor is not within a water supply watershed Critical Area.

Water quality for the proposed study corridor is summarized in the 2000 Cape Fear River Basin Management Plan. Water quality samples in a downstream section of Richland Creek in July 1998 indicated Excellent water based on macroinvertebrate samples. A FWS Critical Habitat designation area for the Cape Fear shiner is located along the Deep River 12 miles (19.3 kilometers) downstream of the study corridor (February 25, 2003 FWS).

The Cape Fear River sub-basin 03-06-09 includes a portion of the Deep River and surrounding tributaries including Richland Creek. This watershed area supports one major point-source discharger, the City of Asheboro Waste Water Treatment Plant with 9.0 million gallons/day (34 million liters/day) permitted flow. The watershed also contains 14 minor discharges with a total permitted flow of 0.8 million gallons/day (3 million liters/day).

3. Anticipated Impacts

Both project alternatives include complete bridging of Richland Creek to maintain the current water quality, aquatic habitat, and flow regime. Alternate 1 involves replacement on a new alignment downstream, and Alternate 2 involves replacement at the existing location (Figure 2). Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule. The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation.

In each of the two alternatives, the proposed bridge replacement will allow for continuation of pre-project stream flows in Richland Creek, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, soil and erosion control measures for High Quality Waters will be installed at the project site and maintained during the entire life of the project.

NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) must be applied for the removal of this bridge.

D. Biotic Resources

The living systems described in the following sections include communications of associated plants and animals in the project study area. Scientific nomenclature and common names (when applicable) are used for the plant and animal species described. Terrestrial and aquatic wildlife were determined through field observations, evaluations of habitat, and review of field guides and other documentation.

1. Plant Communities

Three distinct plant communities were identified within the study corridor: dry-mesic oak-hickory forest, mixed pine/hardwood forest, and residential/disturbed land. These plant communities are described below.

Dry-Mesic Oak-Hickory- Dry-mesic oak-hickory forest occurs on ridges and mid slopes in the northwest and southeast quadrants of the study corridor. This community approximates that described by Schafale and Weakley (1990) and typically occurs on acidic soils along topographic moisture gradients typical of mid slopes and upland flats of the Piedmont and Coastal Plain. This community varies in species composition and may contain a mixture of uneven-aged trees including an established old-growth canopy and numerous lesser sub-levels.

Within the study corridor, a well-defined canopy towers over an established mid-story, which in turn stands above a sparse shrub and grounded herb assemblage. Predominant canopy species are white oak (*Quercus alba*), pignut hickory (*Carya glabra*), scarlet oak (*Quercus coccinea*), sweet gum (*Liquidambar styraciflua*), and tulip poplar (*Liriodendron tulipifera*). The canopy also includes scattered black gum (*Nyssa sylvatica*), shagbark hickory (*Carya ovata*), and sycamore (*Platanus occidentalis*). The mid-story includes eastern red cedar (*Juniperus virginiana*), flowering dogwood (*Cornus florida*), American beech (*Fagus grandifolia*), red maple (*Acer rubrum*), and American elm (*Ulmus americana*) with scattered ironwood (*Carpinus caroliniana*), and sourwood (*Oxydendrum arboreum*). The shrub sub-layer consists of mountain laurel (*Kalmia* sp.), American holly (*Ilex opaca*), poison ivy (*Rhus radicans*), wild azalea (*Rhododendron* sp.), tag alder (*Alnus serulata*), box elder (*Acer negundo*), and black haw (*Viburnum prunifolium*). The patchy herb assemblage includes solomon's seal (*Polygonatum biflorum*), Christmas fern (*Polystichum acrostichoides*), cat greenbrier (*Smilax glauca*), violet (*Viola* sp.), mayapple (*Podophyllum peltatum*), and elderberry (*Sambucus* sp.)

Mixed Pine/Hardwood Forest - This secondary growth forest is located along the southwestern quadrant of the study corridor, bounded to the east by SR 2832 and toward the north by the Dry-Mesic Oak-Hickory Forest. In contrast with the Dry-Mesic Oak-Hickory Forest, this stretch of woods is mainly confined to the upland flats and lacks developed vertical sub-canopy structures. Also, the diversity is relatively small within each vertical sub-layer. It appears that this area was disturbed approximately 15 years ago and successional growth includes relatively large numbers of pines.

Loblolly (*Pinus taeda*) and Virginia pines (*P. virginiana*) dominate the developing canopy, which also includes tulip popular and white oak. The sub-

canopy/shrub layer consists of flowering dogwood, redbud (*Cercis canadensis*), tulip popular, and eastern red cedar. The herb assemblage contains Christmas fern (*Polystichum acrostichoides*), ebony spleenwort (*Asplenium platyneuron*), and cat greenbrier.

Residential/Disturbed Land -The northeast quadrant of the study corridor contains a house site and adjacent grassy yard and pasture. Trees in this area include eastern red cedar, tulip popular, and red maple. The shrub/sub-canopy assemblages include winged elm (*Ulmus alata*) and Chinese privet (*Ligustrum sinense*). Herbs include goldenrod (*Solidago* spp.), blackberry (*Rubus* sp.), broomsedge (*Andropogon virginicus*), dandelion (*Taraxacum officinale*), and fescue (*Festuca* sp.).

2. Plant Community Impacts

Plant community impacts are estimated based on the amount of each plant community present within the alternative corridors. Alternate 1 involves replacement on new alignment, and Alternate 2 involves replacement at the existing location on a new alignment (Figure 2). The following table depicts community impacts associated with each alternative.

Plant Community Impacts. Plant community impacts at Bridge No. 226, Randolph County, for Alternates 1 and 2. Areas are given in acres (hectares).

Plant Community	Alternate 1	Alternate 2 (Preferred)
Dry-Mesic Oak-Hickory Forest	0.33 (0.13)	0.13 (0.05)
Mixed Pine /Hardwood Forest	0.02 (0.01)	0.02 (0.01)
Residential/ Disturbed Land	0.49 (0.20)	0.17 (0.07)
TOTAL:	0.84 (0.34)	0.32 (0.13)

Actual construction impacts may be less than those indicated above since the calculations were base on a worst case scenario. From an ecological perspective, impacts of upgrading existing road facilities are minimized by Alternate 2. This alternative corridor contains minimal amounts of natural plant community (Dry-Mesic Oak-Hickory Forest and Mixed Pine/Hardwood Forest) and adjacent roadside vegetation. No new fragmentation of plant communities will be created by implementation of Alternate 2, as the project will result only in relocation of community boundaries. Residential/Disturbed

community area included in Alternate 2 primarily consists of maintained road shoulders and includes only fringe areas of an established residential yard. Alternate 1 will not only impact more plant community area, but also causes fragmentation of the Dry-Mesic Oak-Hickory Forest on the slope southeast of the existing structure. Alternate 1 will impact more residential land north of the current bridge than Alternate 2.

Roadside-forest ecotones typically serve as vectors for invasive species into local natural communities. An example of an undesirable invasive species utilizing roadsides is kudzu (*Pueria montana*). The establishment of a hardy groundcover on road shoulders will limit the availability of construction areas to invasive and undesirable plants.

3. Wildlife

There were signs of a few mammals within the study corridor including trees stripped of bark by beaver (*Castor canadensis*), a jawbone of a white-tailed deer (*Odocoileus virginianus*) and scat remains that included fish scales and crayfish remains, suggesting American river otter (*Lutra canadensis*) or raccoon (*Procyon lotor*).

Bird species identified during the field visit include turkey vulture (*Cathartes aura*) and black vulture (*Coragyps atratus*), northern cardinal (*Cardinalis cardinalis*), northern parula (*Parula americana*), tufted titmouse (*Baeolophus bicolor*), blue-gray gnatcatcher (*Polioptila caerulea*), red-eyed vireo (*Vireo olivaceus*), pine warbler (*Dendroica pinus*), eastern blue bird (*Sialia sialis*), white-breasted nuthatch (*Sitta carolinensis*), and signs of yellow-bellied sapsucker (*Sphyrapicus vaius*). Species expected within the study corridor habitat include great blue heron (*Ardea herodias*), red-shouldered hawk (*Buteo lineatus*), Acadian flycatcher (*Empidonax vireescens*), eastern phoebe (*Sayornis phoebe*), and American robin (*Turdus migratorius*).

Terrestrial reptiles spotted during the visit include the five-lined skink (*Eumeces fasciatus*) and green anole (*Anolis carolinensis*). Terrestrial amphibians and reptiles expected within the region include American toad (*Bufo americanus*), slimy salamander (*Plethodon glutinosus*), black racer (*Coluber constrictor*), common garter snake (*Thamnophis sirtalis*), copperhead (*Agkistrodon contortrix*), and eastern box turtle (*Terrapene carolina*).

Aquatic amphibians and reptiles observed during the field visit include a northern water snake (*Nerodia sipedon*) and a pickerel frog (*Rana palustris*). Expected species for this region include southern leopard frog (*Rana utricularia*), green frog (*Rana clamitans*), and yellowbelly slider (*Chrysemys scripta*).

Within the stream itself, sunfish (*Lepomis* sp.) and schools of unidentified minnows were observed, as well as live Asian clam (*Corbicula fluminea*) and a native mussel (*Elliptio* sp.). Some fish expected to be found in this region include chain pickerel (*Esox niger*), rosyside dace (*Clinostomus funduloides*), bluehead chub (*Nocomis leptocephalus*), satinfin shiner (*Cyprinella analostana*), redlip shiner (*Notropis chlorocephalus*), creek chub (*Semotilus atromaculatus*), creek chubsucker (*Erimyzon oblongus*), smallfin redhorse (*Moxostoma robustum*), brown bullhead (*Ameiurus nebulosus*), margined madtom (*Norturus insignis*), green sunfish (*Lepomis cyanellus*), redbreast sunfish (*Lepomis auritus*), bluegill (*Lepomis macrochirus*), and largemouth bass (*Micropterus salmoides*).

Richland Creek is a medium-sized stream that supports good populations of sunfish. No in-water work will be performed from April 1 to June 15 to minimize impacts to fish spawning.

4. Wildlife Impacts

Due to the limited extent of infringement on natural communities, Alternate 2 (replacement on existing location) will not result in substantial loss or displacement of known terrestrial animal populations. No substantial habitat fragmentation is expected since improvements will be restricted to or adjoining existing roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns.

Alternate 1 will remove approximately 0.35 acres (0.14 hectares) of relatively undisturbed, forested, north-facing slope east of the existing roadway. Although the existing roadway will be removed and replanted with native vegetation, this alternative results in a much wider area of disturbed land and habitat fragmentation than Alternative 2. Recovery of the vegetative community structure and associated habitats for wildlife will take decades.

Impacts associated with turbidity and suspended sediments resulting from construction of bridge bents will affect benthic populations on a short-term basis. Temporary impacts to downstream habitats from increased sediment during construction should be minimized by the implementation of stringent erosion control measures.

E. Special Topics

1. Waters of the United States

Surface waters within the embankments of Richland Creek are subject to

jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR section 328.3). Richland Creek can be characterized as a perennial stream system with an unconsolidated bottom of boulder to silt-sized material, including areas of exposed bedrock.

No components of the existing bridge should be dropped into Waters of the United States during demolition. In consideration of surface water impacts, this project can be classified as Case 2, where no in-stream work may occur during moratorium periods (April 1 to June 15 for this project) due to spawning within the sunfish population. In addition, restrictions outlined in Best Management Practices for Protection of Surface Waters must be followed. NCDOT will coordinate with the various resource agencies including the NC Wildlife Resources Commission during project planning to ensure that all concerns regarding bridge demolition are resolved.

2. Jurisdictional Wetlands

Vegetated wetlands are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR section 328.3). These areas are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). NWI mapping does not indicate the existence of wetlands within the study corridor, and the site visit verified that the study corridor contains no jurisdictional wetlands.

3. Permits Required

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. It is anticipated that this project will fall under Nationwide Permit (NWP) #23 (61 FR 65874, 65916; December 13, 1996) for approved CEs. DWQ has made available a General 401 Water Quality Certification for NWP #23. However, authorization for jurisdictional area impacts through use of this permit will require written notice to DWQ. In the event that NWP #23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized.

4. Mitigation

Compensatory mitigation is not proposed for this project due to the limited nature of project impacts. However, utilization of BMPs is recommended in

an effort to minimize impacts. Fill or alteration of more than 150 linear feet (45.8 meters) of stream may require compensatory mitigation in accordance with 15 NCAC2H.0506(h). A final determination regarding mitigation rests with the COE.

F. Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered, Threatened, or officially Proposed for such listing, are protected under the provisions of Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Federally protected species listed for Randolph County (February 25, 2003 FWS list) are listed in the table below.

Federally Protected Species: Species name and status for federally-protected species in Randolph County per the February 25, 2003 FWS list

<u>Common Name</u>	<u>Scientific Name</u>	<u>Federal Status</u>
Cape Fear shiner	<i>Notropis mekistocholas</i>	Endangered
Schweinitz's sunflower	<i>Helianthus schwienitzii</i>	Endangered

Cape Fear Shiner - The Cape Fear shiner is a small (to 2 inches [5.1 centimeters]), moderately stocky minnow. Its body is pale silvery yellow with a black band along the sides and the moderate-sized eyes are located on the sides of the head (FWS 1991). The fins are yellowish and somewhat pointed. The upper lip is black and the lower lip has a black bar along its margin. This species is distinguished from all other *Notropis* by having a coiled alimentary tract that is visible through the wall of the belly (Rohde *et al.* 1994). Food items probably include bottom detritus, diatoms, and other periphytes (FWS 1991). Captive specimens feed readily on plant and animal material. Habitat of the Cape Fear shiner is generally slow pools, riffles, and runs over gravel, cobble, and boulders (FWS 1991). Little is known about the Cape Fear shiner's life history.

Cape Fear shiner habitat occurs in streams with gravel, cobble, or boulder substrates. It is most often observed inhabiting slow pools, riffles and slow runs associated with water willow beds. Juveniles can be found inhabiting slackwater, among large rock outcrops and in flooded side channels and pools.

The Cape Fear shiner is limited to three populations in North Carolina. The strongest population of the Cape Fear shiner is in Chatham and Lee Counties from the Locksville dam upstream to the Rocky River and Bear Creek. Another population is located above the Rocky River Hydroelectric Dam in Chatham County, and the third population is found in the Deep River system in Randolph and Moore Counties. The closest population is more than 10 linear stream miles (32 kilometers) south of the study corridor within a portion of Fork Creek and the adjacent Deep River near the Randolph and Moore County lines.

BIOLOGICAL CONCLUSION: Suitable habitat exists for the Cape Fear Shiner within the study corridor. A FWS Critical Habitat designation area for the Cape Fear shiner is located along the Deep River 12 miles (19.3 kilometers) downstream of the study corridor (April 12, 2001 FWS).

A fisheries survey was conducted at the project site on July 11, 2002 by NCDOT and NC Wildlife Resources Commission biologists to determine if the Cape Fear shiner was present near the current bridge. No Cape Fear shiners were documented at the project site. Given the results of the fish survey, the distance of the project location from the area of Richland Creek considered occupied, and that the environmental commitments will be strictly adhered to, it was concluded that the project will not likely adversely affect the Cape Fear shiner. **NOT LIKELY TO ADVERSELY AFFECT**

Schweinitz's Sunflower - Schweinitz's sunflower is an erect, unbranched, rhizomatous, perennial herb that grows to approximately 6 feet (1.8 meters) in height. The stem may be purple, usually pubescent, but sometimes nearly smooth. Leaves are sessile, opposite on the lower stem but alternate above; in shape they are lanceolate and average 5 to 10 times as long as wide. The leaves are rather thick and stiff, with a few small serrations. The upper leaf surface is rough and the lower surface is usually pubescent with soft white hairs. Schweinitz's sunflower blooms from September to frost; the yellow flower heads are about 0.6 inches (1.5 centimeters) in diameter. The current range of this species is within 60 miles (96.5 kilometers) of Charlotte, North Carolina, occurring on upland interstream flats or gentle slopes, in soils that are thin or clayey in texture. The species needs open areas protected from shade or excessive competition, reminiscent of Piedmont prairies. Disturbances such as fire maintenance or regular mowing help sustain preferred habitat (FWS 1994).

BIOLOGICAL CONCLUSION: Suitable habitat for Schweinitz's sunflower exists along the maintained road shoulder and hill slope in the

southwest quadrant of the study corridor and within the residential yard in the northeast quadrant. A survey for this sunflower was conducted during the blooming season (September to frost) on September 19, 2001. This survey consisted of systematically walking all areas of suitable habitat and identifying all *Helianthus* species. No *Helianthus* sunflowers were identified within the study corridor. Based on available information and results of an on-site survey, the proposed project will not affect Schweinitz's sunflower. **NO EFFECT.**

Federal Species of Concern - The February 25, 2003 FWS list also includes a category of species designated as "Federal species of concern" (FSC) for Randolph County. A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). A list of FSC species occurring in Randolph County is given in the table below.

According to the NHP records, the Carolina creekshell is located in the immediate proximity of the study area.

Federal Species of Concern: Species name, habitat potential within the study corridor, and state status for species federally designated as FSC within Randolph County.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Potential Habitat</u>	<u>State Status**</u>
Carolina darter	<i>Etheostoma collis collis</i>	Yes	SC
Carolina redhorse	<i>Moxostoma sp.</i>	Yes	SR
Brook floater	<i>Alasmidonta varicosa</i>	Yes	T(PE)
Pee Dee crayfish ostracod	<i>Dactylocythere peedeensis</i>	Yes	W3
Atlantic pigtoe	<i>Fusconaia masoni</i>	Yes	T(PE)
Carolina creekshell	<i>Villosa vaughaniana</i>	Yes	SC(PE)

** E = Endangered; T = threatened; SC = Special concern; SR = Significantly Rare; C = Candidate; P = Species has been formally proposed for listing as Endangered, Threatened, or Special Concern; W5 = NC Plant Watch List: rare because of severe decline (Amoroso 1999; LeGrand and Hall 1999).

2. State Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), Special Concern (SC), Candidate (C),

Significantly Rare (SR), or Proposed (P) (Amoroso 1999, LeGrand and Hall 1999) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). Species on the state list have been documented within 1.0 mile (1.6 kilometers) of the study corridor include the following: Piedmont gerardia (*Agalinis decemloba*) nearly 1 mile (1.6 kilometers) southwest of the study corridor ; and Piedmont Indigo-Bush (*Amorpha schwerinii*) nearly 0.5 mile (0.8 kilometer) south and west of the study corridor.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally-funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council a reasonable opportunity to comment on such undertakings.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on March 2, 2000. All structures within the APE were photographed, and later reviewed by NCDOT architectural historians and the State Historic Preservation Office (HPO). None of the properties were considered eligible, and in a concurrence form dated June 1, 2000, the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed in or eligible for listing in the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

In a letter dated January 2, 2001, the SHPO recommended an archaeological survey of the project area and identified one known archaeological site, 31RD230 located east of the existing crossing. An archaeological survey report was prepared by NCDOT which determined "a finding of no historic properties is considered appropriate for this project." In a letter dated January 25, 2002, the SHPO concurred with this finding. A copy of the SHPO's letter is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of the inadequate bridge will result in safer traffic operations.

The project is considered to be a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

In compliance with executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine whether minority or low-income populations were receiving disproportionately high and adverse human health or environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low income populations.

No adverse effect on public facilities or services is anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The proposed project will not require right of way acquisition or easement from any lands protected under Section 4(f) of the Department of Transportation Act of 1966.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime, unique or important farmland soils for all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). The proposed project has been coordinated with the US Department of Agriculture and no prime, unique or important farmland will be converted as a result of this bridge replacement project. This project is in conformance with the Farmland Protection Policy Act (FPPA).

The North Carolina Natural Heritage Program (NCNHP) compiles the North Carolina Department of Environment and Natural Resources' list of "Significant Natural Heritage Areas" on the basis of the occurrences of rare plant and animal species, rare or high quality natural communities and special animal habitats. The North Carolina Zoological Park owns

property southeast of the subject crossing which has been listed by NCNHP as one of North Carolina's most significant natural areas. This area is considered to be of Statewide significance as a natural area containing similar ecological resources that are among the highest quality occurrences in North Carolina. Inclusion on this list does not confer protection to the natural area, nor does it give it regulatory status. The preferred alternative will not result in the fragmentation of this area.

The project is located in Randolph County which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Parts 51 and 93 are not applicable because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

The traffic volumes will not increase or decrease because of this project; therefore, the project's impact on noise and air quality will not be substantial.

The noise levels will increase during the construction period, but will only be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulations (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Waste Management revealed no leaking underground storage tanks or hazardous waste sites in the project area.

Randolph County is a participant in the National Flood Insurance Program. The project site is located in a FEMA floodplain Zone A8 with determined base flood elevations as shown in Figure 5. The base 100-year flood elevation is shown as 509 feet (155 meters) at this site. There is no practicable alternative to crossing the floodplain area. The amount of floodplain area to be affected is not substantial. The final design of the bridge will be such that the backwater elevation of the stream will not encroach beyond the current 100-year floodplain limits.

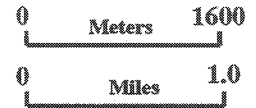
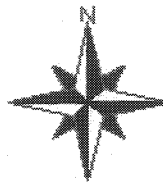
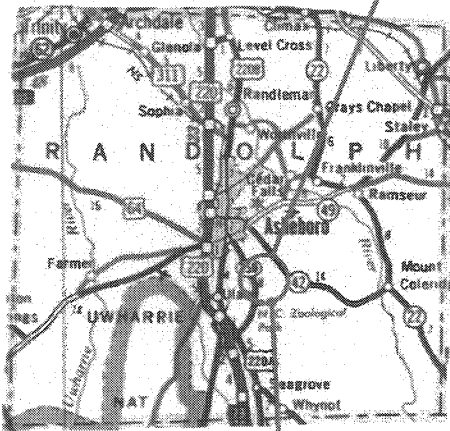
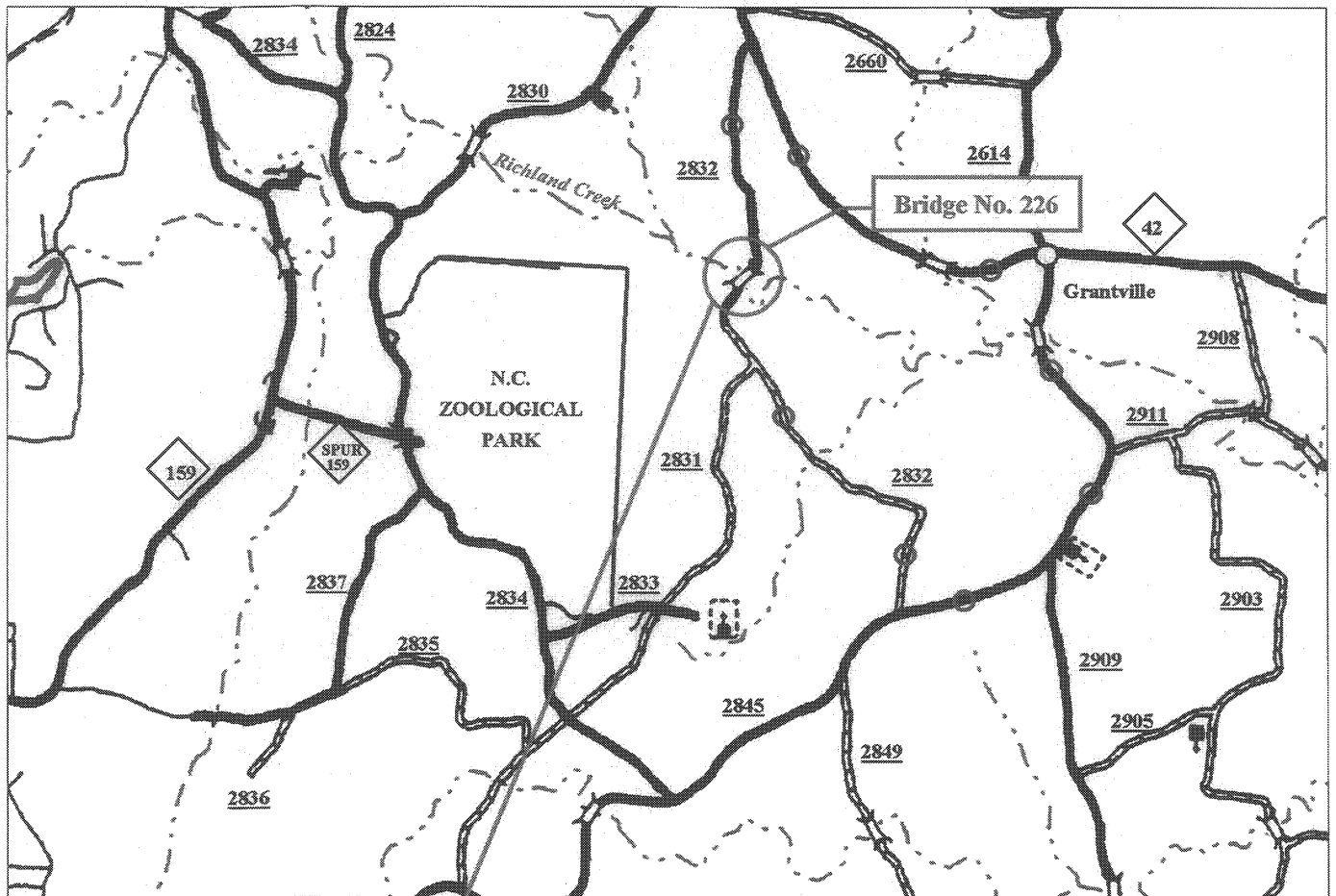
On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of this project.

VIII. AGENCY COMMENTS

North Carolina Wildlife Resources Commission

Comment: This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be performed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV.

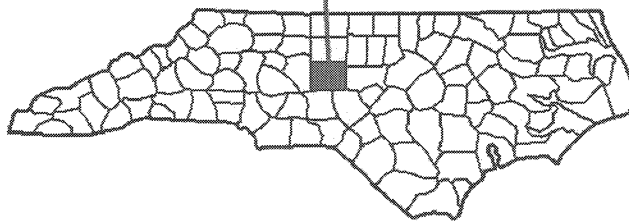
Response: All necessary sedimentation and erosion control measures will be implemented during the construction of the new structure. Also, no in-water work will be performed from April 1 to June 15.




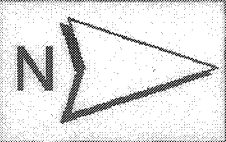
APPROXIMATE SCALE

LEGEND

—○—○—○—
PROPOSED DETOUR ROUTE



	<p>North Carolina Department of Transportation Project Development & Environmental Analysis Branch</p>
<p>RANDOLPH COUNTY Bridge No. 226 on SR 2832 (Fairview Farm Road) over Richland Creek TIP No. B-3506</p>	
<p>Figure 1</p>	



Alt. 2
(Preferred)

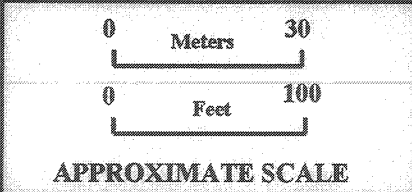
Bridge No. 226

Alt. 1

Richland Creek

Fairview Farm Rd

SR 2832



North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

RANDOLPH COUNTY
Bridge No. 226
on SR 2832 (Fairview Farm Road)
Over Richland Creek
TIP No. B-3506

Figure 2

**RANDOLPH COUNTY
BRIDGE NO. 226 ON SR 2832 OVER
RICHLAND CREEK
B-3506**

**SIDE VIEW
LOOKING WEST**

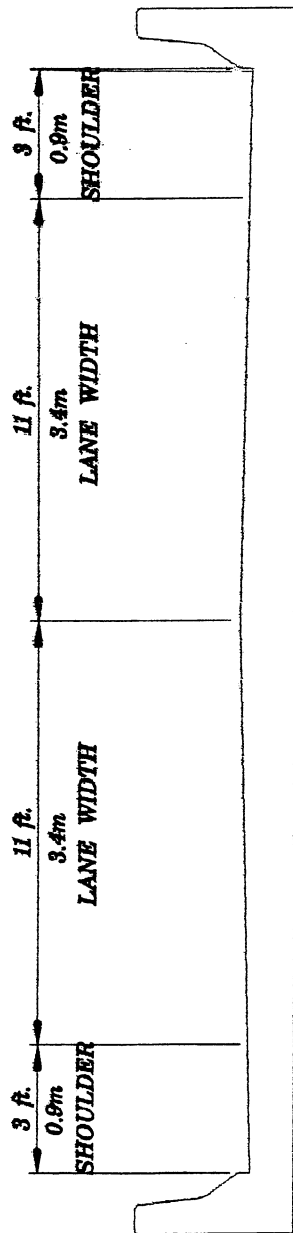


LOOKING NORTH

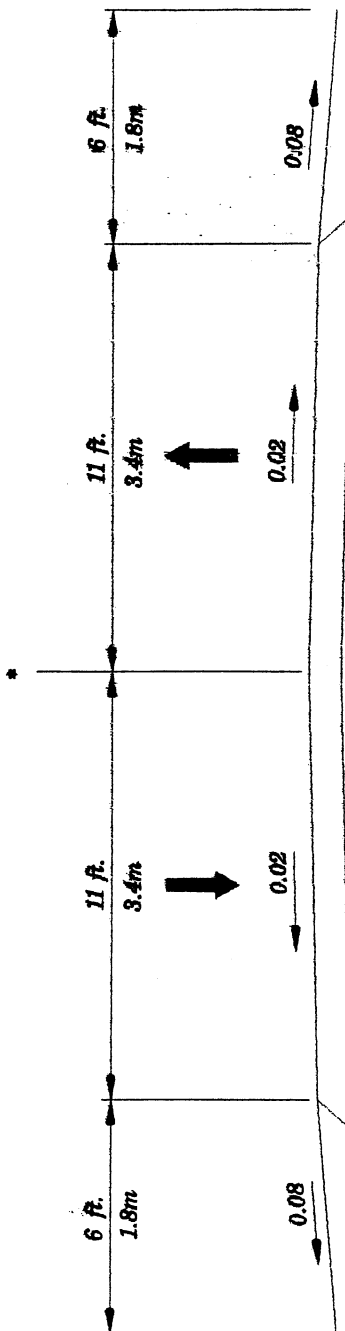


LOOKING SOUTH

FIGURE 3



PROPOSED TYPICAL BRIDGE SECTION



PROPOSED TYPICAL APPROACH SECTION

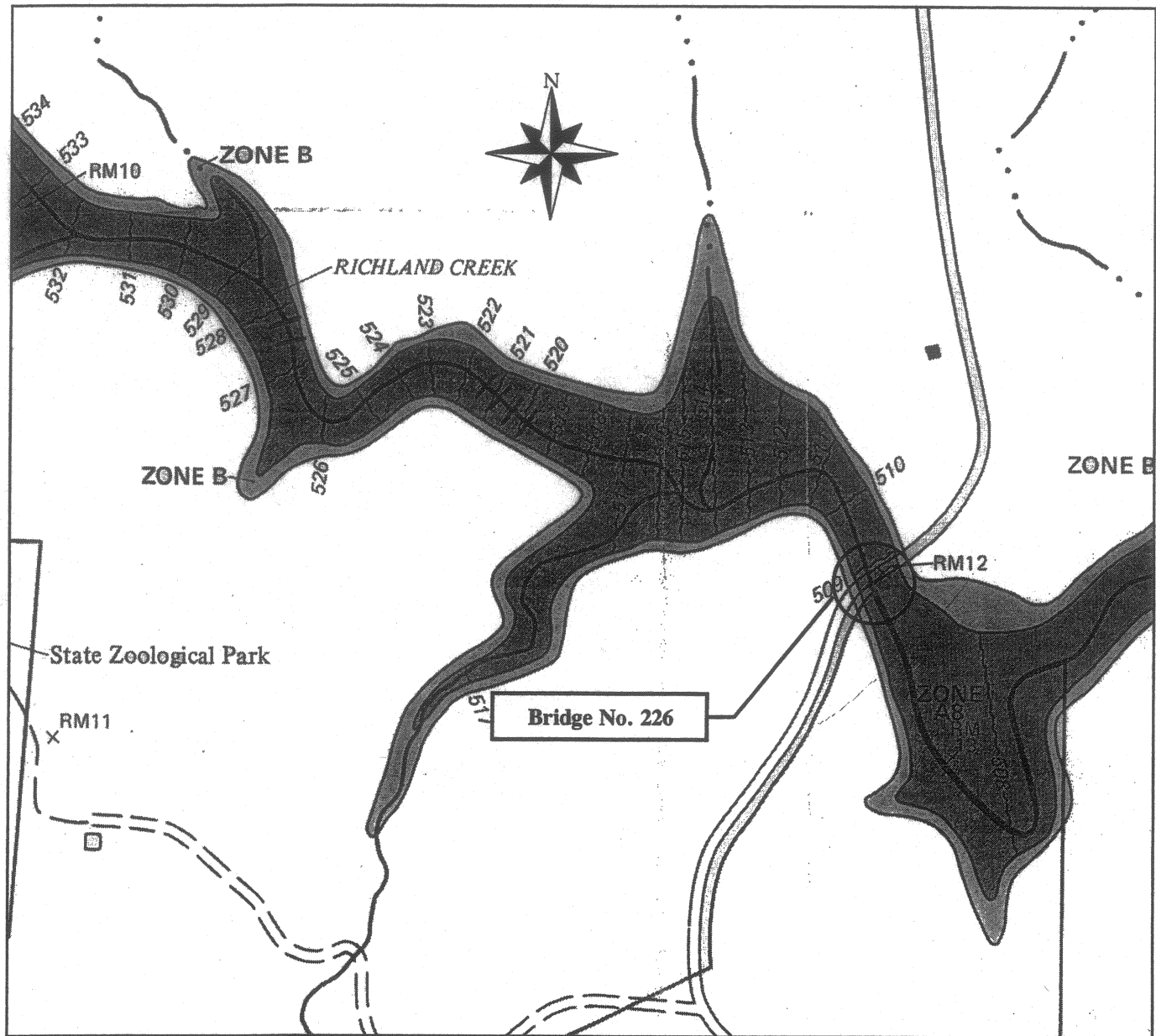
FUNCTIONAL CLASSIFICATION: RURAL LOCAL ROUTE

AVERAGE DAILY TRAFFIC		
(EXISTING)	2003	= 225
(DESIGN YR.)	2030	= 450

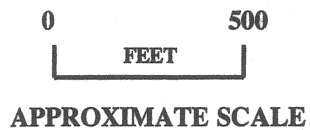



North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

RANDOLPH COUNTY
Bridge No. 226
on SR 2832 over
Richland Creek
TIP No. B-3506



FEMA - Floodplain Map of Project Area



	<p>North Carolina Department of Transportation Project Development & Environmental Analysis Branch</p>
<p>RANDOLPH COUNTY Bridge No. 226 on SR 2832 (Fairview Farm Road) over Richland Creek TIP No. B-3506</p>	
<p>Figure 5</p>	

APPENDIX

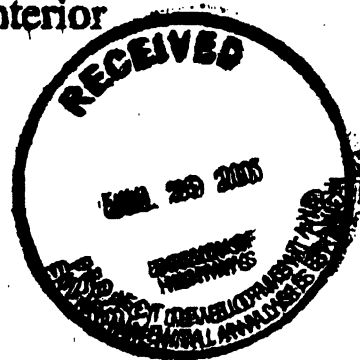


United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 93726
Raleigh, North Carolina 27638-3726

July 29, 2003



Dr. Gregory J. Thorpe
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

This letter is in response to your letter of July 15, 2003 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 226 on SR 2832 over Richland Creek in Randolph County (TIP No. B-3506) is not likely to adversely affect the federally-endangered Cape Fear shiner (*Notropis mekistocholas*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to the information you submitted, a survey was conducted upstream and downstream of the existing bridge on July 11, 2002 by NCDOT biologists. No Cape Fear shiners were observed. Also, it is noted that the site is over ten miles upstream of known occupied habitat for this species. Based on this information and the negative results of the survey, the Service concurs with your conclusion that the proposed bridge replacement is not likely to adversely affect the Cape Fear shiner. We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Garland B. Pardue, Ph.D.
Ecological Services Supervisor



☒ North Carolina Wildlife Resources Commission ☒

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

TO: John Conforti
Project Engineer, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: January 2, 2001

SUBJECT: NCDOT Bridge Replacements in Anson, Cabarrus, Catawba, Cleveland, Davie, Forsythe, Gaston, Guilford, Mecklenburg, Randolph, Rockingham, and Stanly counties of North Carolina. TIP Nos. B-3404, B-3421, B-3822, B-3828, B-3637, B-3835, B-3454, B-3839, B-3840, B-3337, B-3652, B-3851, B-3677, B-3506, B-3694, and B-3700.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.
5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should

- be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.
6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
 7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
 8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
 9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
 10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
 11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.
 12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.
 13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
 14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.
 15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.
 16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If

multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankful stage (similar to Lyonsfield design). This could be accomplished by constructing a low sill on the upstream end of the other cells that will divert low flows to another cell. This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.
4. Riprap should not be placed on the stream bed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3404 – Anson County – Bridge No. 314 over South Fork Jones Creek. We have no specific comments. We are not aware of any threatened or endangered species in the project vicinity.
2. B-3421 – Cabarrus County – Bridge No. 266 over Norfolk and Southern Railway. No comment.
3. B-3822 – Catawba County – Bridge No. 8 over unnamed tributary to the Catawba River. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened or endangered species in the project vicinity.
4. B-3828 – Cleveland County – Bridge No. 233 over Buffalo Creek. We have no specific comments. We are not aware of any threatened or endangered species in the project vicinity.
5. B-3637 – Davie County – Bridge No. 37 over I-40. No comment.
6. B-3835 – Davie-Forsyth counties – Bridge No. 35 over the Yadkin River. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We request that the new bridge span the adjacent wetlands

entirely. The old fill causeways should then be removed and graded to natural ground level. We are not aware of any threatened or endangered species in the project vicinity.

7. B-3454 – Forsyth County – Bridge No. 260 over Muddy Creek. We have no specific comments. We are not aware of any threatened or endangered species in the project vicinity.
8. B-3839 – Forsyth County – Bridge No. 139 over Fishers Branch. We have no specific comments. We are not aware of any threatened or endangered species in the project vicinity.
9. B-3840 – Gaston County – Bridge No. 52 over South Crowders Creek. We have no specific comments. We are not aware of any threatened or endangered species in the project vicinity.
10. B-3337 – Guilford County – Bridge No. 527 over North Buffalo Creek. We have no specific comments. We are not aware of any threatened or endangered species in the project vicinity.
11. B-3652 – Guilford County – Bridge No. 20 over the Deep River. SR 4121 crosses the Deep River just below the dam of High Point City Lake. This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be performed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened or endangered species in the project vicinity.
12. B-3851 – Guilford County – Bridge No. 21 over US 29/70. No comment.
13. B-3677 – Mecklenburg County – Bridge No. 36 over Greasy Creek. We have no specific comments. We are not aware of any threatened or endangered species in the project vicinity.
14. B-3506 – Randolph County – Bridge No. 226 over Richland Creek. Richland Creek is a medium sized stream that supports good populations of sunfish. Therefore, we request that no in-water work be performed from April 1 to May 31. We are not aware of any threatened or endangered species in the project vicinity.
15. B-3694 – Rockingham County – Bridge No. 55 over the Belews Lake Spillway. This bridge appears to be just downstream of the Belews Lake dam. This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be performed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened or endangered species in the project vicinity.
16. B-3700 – Stanly County – Bridge No. 187 over Long Creek. This segment of Long Creek may support the state listed Carolina darter. Therefore, we request that High Quality Sedimentation and Erosion Control Measures be used to minimize project impacts to this species.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

January 2, 2001

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL
REGISTER OF HISTORIC PLACESProject Description: Replace Bridge No. 226 on SR 2832 over Richland Creek

On June 1, 2000, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
☒ Federal Highway Administration (FHWA)
☒ North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

- ☐ a scoping meeting
☒ photograph review session/consultation
☐ other

All parties present agreed

- ☐ there are no properties over fifty years old within the project's area of potential effect.
☒ there are no properties less than fifty years old which are considered to meet Criterion
Consideration G within the project's area of potential effect.
☒ there are properties over fifty years old (list attached) within the project's area of potential effect,
but based on the historical information available and the photographs of each property, properties
identified as Bridge #2263 Prop #1 are considered not eligible for the National
Register and no further evaluation of them is necessary.
☒ there are no National Register-listed properties located within the project's area of potential effect.

Signed:

Mary Pope Hu
Representative NCDOT

6.1.00
Date

Nicholas C. Dawson
FHWA, for the Division Administrator, or other Federal Agency

6.1.00
Date

April Matgoney
Representative, SHPO

6.1.00
Date

Walter Hood
State Historic Preservation Officer

DR Deputy
12.5.

6/9/00
Date



North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

January 2, 2001

MEMORANDUM

TO: William D. Gilmore, PE, Manager
Project Development & Environmental Analysis Branch
NC Department of Transportation

FROM: David Brook *for David Brook*
Deputy State Historic Preservation Officer

RE: Request for Comments for Group XXX Bridge Projects, Bridge #226 on
SR 2832 over Richland Creek, B-3506, Randolph County, ER 01-8189

Thank you for your letter of November 15, 2000 concerning the above project.

Prehistoric archaeological site 31RD230 is located east of the existing bridge, but should not be affected by the proposed replacement. However, portions of the area of potential effect (APE) contain a high probability for the presence of prehistoric archaeological sites. We recommend that an archaeological survey of the APE be conducted prior to project implementation.

We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area. However, since a comprehensive historical architectural inventory of has never been conducted, there may be structures of which we are unaware located within the planning area.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

cc: Tom Padgett, NC DOT





North Carolina Department of Cultural Resources
State Historic Preservation Office

David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

Division of Historical Resources
David J. Olson, Director

January 25, 2002

MEMORANDUM

TO: William D. Gilmore, Manager
NCDOT, Division of Highways

FROM: David Brook *David Brook*

SUBJECT: Archaeological Reconnaissance Report, Replacement of Bridge No. 226 on SR 2832 over Richland Creek, Randolph County, Federal Aid No. BRZ-2832(2), State No. 8.2572401, TIP B-3506, ER 01-8189 and ER 02-8459

Thank you for your letter of December 17, 2001, transmitting the archaeological reconnaissance report by Jesse Zinn for the above project.

During the course of the reconnaissance survey, no sites were located within the project area. Due to the steepness of the slopes and the small size of the Area of Potential Effect (APE), Mr. Zinn has recommended that no further archaeological investigation be conducted in connection with this project. We concur with this recommendation since the project will involve no historic properties.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above-referenced tracking number.

DB:kgc

cc: Matt Wilkerson, NCDOT
Nicholas Graf, FHWA

Post-it [®] brand fax transmittal memo 7671		# of pages 1
To <i>David Olson</i>	From <i>DB</i>	
Co.	Co.	
Dept.	Phone #	
Fax # <i>319-6999</i>	Fax #	

Administration
Restoration
Survey & Planning

Location
507 N. Blount St, Raleigh, NC
515 N. Blount St, Raleigh, NC
515 N. Blount St, Raleigh, NC

Tracking numbers
4617 Mail Service Center, Raleigh 27699-4617
4613 Mail Service Center, Raleigh 27699-4613
4618 Mail Service Center, Raleigh 27699-4618

Telephone/Fax
(919) 733-4763 • 733-8653
(919) 733-6547 • 715-4801
(919) 733-4763 • 715-4801



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 18, 2002

Memorandum To: Ron Elmore, Project Manager
Consultant Engineering Unit

From: Neil Medlin, Protected Species Group

Subject: Cape Fear Shiner Survey and Freshwater Mussel Survey Report for
the Replacement of Bridge No. 226, on SR 2832 Over Richland
Creek, Randolph County, TIP No. B-3506.

The proposed action calls for the replacement of bridge No. 226 over Richland Creek in Randolph County. The current bridge has an overall length of 62 feet, and was constructed in 1940. Final design alternatives for the new bridge were not available at the time of this report. A fisheries survey was conducted in Richland Creek in the project area as well as a general freshwater mussel survey.

Cape Fear Shiner

The Cape Fear shiner (*Notropis mekistocholas*) is a federally protected species listed by the U.S. Fish and Wildlife Service for Randolph County. The Cape Fear shiner is a small, moderately stocky minnow. Its body is flushed with a pale silvery yellow, and a black band runs along its sides (Snelson 1971). The fins are yellowish and somewhat pointed. The upper lip is black and the lower lip has a black bar along its margin.

Cape Fear shiner habitat occurs in streams with gravel, cobble, or boulder substrates. It is most often observed inhabiting slow pools, riffles, and slow runs associated with water willow beds. Juveniles can be found inhabiting slackwater, among large rock outcrops and in flooded side channels and pools. The Cape Fear shiner is thought to feed on bottom detritus, diatoms, and other periphytes. Captive specimens feed readily on plant and animal material.

The Cape Fear shiner is limited to three populations in North Carolina. The strongest population of the Cape Fear shiner is in Chatham and Lee Counties from the Locksville dam upstream to the Rocky River and Bear Creek. Another population is

located above the Rocky River Hydroelectric Dam in Chatham County, and the third population is found in the Deep River system in Randolph and Moore Counties.

Biological Conclusion:

Not Likely to Adversely Affect

A fisheries survey was conducted at the project site on July 11, 2002 by NC DOT biologists Neil Medlin, John Alderman and Heather Montague and NC Wildlife Resources Commission biologist Brian Watson to determine if the Cape Fear shiner was present in this section of the stream. The survey was conducted by pulling a seine through water above and below the current bridge. The SR 2832 bridge crossing over Richland Creek is over 10 river miles upstream of the portion of Richland Creek considered occupied by the Cape Fear shiner. No Cape Fear shiners were documented at the project site. The fish species that were collected during the fisheries survey and those that were observed during the mussel survey on July 30, 2002 are summarized in the table below.

<u>Species Collected</u>	<u>Relative Abundance</u>
Highfin shiner, <i>Notropis altipinnis</i>	Abundant
Sandbar shiner, <i>Notropis scepticus</i>	Common
White shiner, <i>Luxilus albeolus</i>	Rare
Redbreast sunfish, <i>Lepomis aurochus</i>	Rare
<u>Additional Species Observed on July 30, 2002</u>	
Green sunfish, <i>Lepomis cyanellus</i>	Rare
Tessellated darter, <i>Etheostoma olmstedii</i>	Common

During an on-site discussion with Brian Watson, the following environmental commitments were developed:

- Best Management Practices for bridge removal will be implemented so that no component of Bridge No. 226 will be dropped into waters of the United States during construction.
- To minimize impacts to fish spawning, an in-water construction moratorium is required from April 1 to June 15.
- High Quality Waters – Soil and Erosion Control Measures will be installed at the project site and maintained throughout project construction.

Given the results of the fish survey, the distance of the project location from the area of Richland Creek considered occupied, and that the environmental commitments will be strictly adhered to, it was concluded that the project will not likely adversely affect the Cape Fear shiner.

Freshwater Mussels

No Federally listed Threatened or Endangered mussel species are listed for the Cape Fear River Basin in Randolph County. A general mussel survey was conducted at the project site on July 30, 2002 by NCDOT biologists Jeff Burleson, Neil Medlin, Matt

Haney, Sharon Snider, Ashley Oliver, and Tom Dickinson. Tactile and visual survey methods were employed for several hundred meters above and below the bridge. In 4.5 person hours of survey time, over 250 *Elliptio* mussels (*Elliptio complanta* complex) and three Carolina creekshell mussels (*Villosa vaughaniana*) were collected. *V. vaughaniana* is listed as a Federal Species of Concern and has been listed as state Endangered (effective July 1, 2002) in North Carolina. The Asian clam, *Corbicula fluminea*, was found to be abundant at the site. *Campelema* sp. snails were also observed in the project area.

The environmental commitments developed to protect the fish community, will also help to protect the mussel community in Richland Creek in the vicinity of the SR 2832 bridge replacement project.

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